



## HYPOTHESIS

# Trauma energetics

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**Summary** This article describes a plausible and testable scientific basis for the various forms of energy psychology that is attracting the interest of therapists worldwide. Our emerging understandings of the energetics of the living matrix and acupuncture network are providing a detailed picture of a high-speed electronic communication and information processing system in the body that may underlay classical concepts of the subconscious and intuition and that can help us explore the boundary between conscious and subconscious phenomena. The hypothesis is that the connective tissue matrix and its extensions reaching into every cell and nucleus in the body is a whole-person physical system that senses and absorbs the physical and emotional impact in any traumatic experience. The matrix is also the physical material that is influenced by virtually all hands-on, energetic and movement therapies. It is suggested that the living matrix is the physical substrate where traumatic memories are stored and resolved. The practical implications of this non-neural hypothesis, in terms of treatment of the trauma patient, are discussed.

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## Introduction

The resolution of trauma is one of the most pressing issues of our times. This is so at the level of individuals, ethnic groups and nations. Our very survival as a species may depend upon methods that can resolve and transcend historic animosities and belief systems and thereby wind down our long history of destructive conflict. At a personal level, the resolution of both old and recent traumatic

experiences can enable many to have more rewarding and authentic experiences of life. Therefore, it is of profound significance that new energetic approaches to trauma resolution are being developed.

The emerging field of energy psychology has been summarized in a number of books (e.g. Gallo, 1998, 2002; Feinstein, 2004; Najemy, 2004; Hartung and Galvin, 2003; Redpath, 1995; Levine and Frederick, 1997; Phillips, 2000; Radomski, 2000, 2002; Naparstek, 2004; Diepold et al., 2004; Schwarz, 2002; Rothschild, 2003; Shapiro, 2001). Various approaches and schools have emerged, and some of these are listed in Table 1.

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**Table 1** Some techniques used in energy psychology.

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Dynamic energetic healing
Attractor field techniques
Tapas acupressure technique (TAT)
Eye movement desensitization and reprocessing (EMDR)
Conscious healing and repatterning therapy (CHART)
Emotional freedom techniques (EFT)
Korean hand therapy
Pranic healing
SEEMORG matrix work
Wavemaker technology
Qigong
Bodymind healing psychotherapy
Thought field therapy (TFT)
Thought energy synchronization therapy
Frequency resonance coherence (FRC)
Energy touch
Healing from the body level up (HBLU)
Reed eye movement acupressure psychotherapy (REMAP)
Guided self-healing (GSH)
Pressure point technique (PPT)
Space/time energy transfer techniques (SET2)
Be set free fast (BSFF)
Provocative energy techniques (PET)

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While not specifically identified as energy psychology techniques, a wide range of bodywork, energetic and movement therapies from time to time lead to the resolution of long-standing emotional and psychological distress. This happens, e.g. with Acupuncture, Structural Integration (Rolfing), Trager, Zero Balancing, Healing Touch, Therapeutic Touch, Polarity Therapy, Massage, Osteopathy, Chiropractic, Holographic Repatterning, Consegrity, Bio Energetic Synchronization Technique and so on. Emotional releases can also follow the application of various energy medicine devices that introduce electric currents, light, magnetic fields, sounds or other forms of energy into the body. Taken together, various bodywork, energetic, movement and energy psychology approaches show much promise in assisting clients who are unresponsive to other treatments by alleviating trauma, anxiety, phobias, stress, limiting beliefs, addictions, compulsions, allergies and personality disorders. From time-to-time practitioners and their clients are also delighted to see the resolution of chronic diseases and disorders as an unexpected "side effect" accompanying the resolution of long-standing emotional turmoil. One reason for this is that the complementary therapist

is often the last resort for the desperate patient who has gone through every medical diagnostic test and pharmaceutical regime with no resolution to their problem.

The number of practitioners using energy psychology and related methods and their therapeutic successes are increasing dramatically. There is a need for a testable hypothesis to explain how these techniques work.

A theoretical basis for energy psychology can lead to a better understanding of the nature of the subconscious and intuition. This can enable us to hone our therapeutic approaches to be more effective and sharpen our intuitive skills in delving into the mysterious world of trauma. This is important because emotional trauma, unlike physical trauma, does not leave a visible mark on the surface of the body. Or does it? Body language and facial expression can provide subtle clues about the emotional state and history. See, for example, *Kinoetics, Signs of Conflict: Our Personal Body Language* (Linson, 2000), and the references cited therein.

## Defining energy psychology

A recent conference of the Association for Comprehensive Energy Psychology (ACEP, 2005) defined energy psychology as follows:

Energy psychology is a family of mind/body interventions clinically observed to consistently help with a range of psychological concerns, through directly and methodically treating the human vibrational matrix. This matrix includes the Biofield that envelopes the body, the energy centers (chakras) and the energy pathways (meridians and related acupoints).

Note that the above definition is not primarily focused on the widely accepted components of traditional verbal psychotherapy such as mind and brain. Many of the energy psychology techniques involve a systematic process of tapping on acupuncture points and thereby interacting with a "vibrational matrix". Hence, these methods represent a significant departure from the classical mental/neurological concepts of trauma and clinical psychotherapy. The newer methods usually do not involve the so-called "talk therapy" that strives to have the patient recall and discuss and discharge specific traumatic events in their past. Detailed recall of trauma can happen, but is not an essential part of the processes.

In developing a theoretical model for new psychotherapeutic methods, it is important that we not lose sight of the historic contributions of Freud and his colleagues in opening up our appreciation of the dynamics of the subconscious mind (Freud, 1953–1974). Pressman (2004) has emphasized the importance of Freudian psychoanalytic procedures and what they have taught us of the subtle energetics of the mind. Freudian concepts such as the “barriers” between the conscious mind and the unconscious, with the barriers being defined as “defenses” continue to have value as we explore new models and methods. The topic of defenses will be discussed again later in the paper.

### Neural vs. non-neural correlates of consciousness (NNCC) and trauma

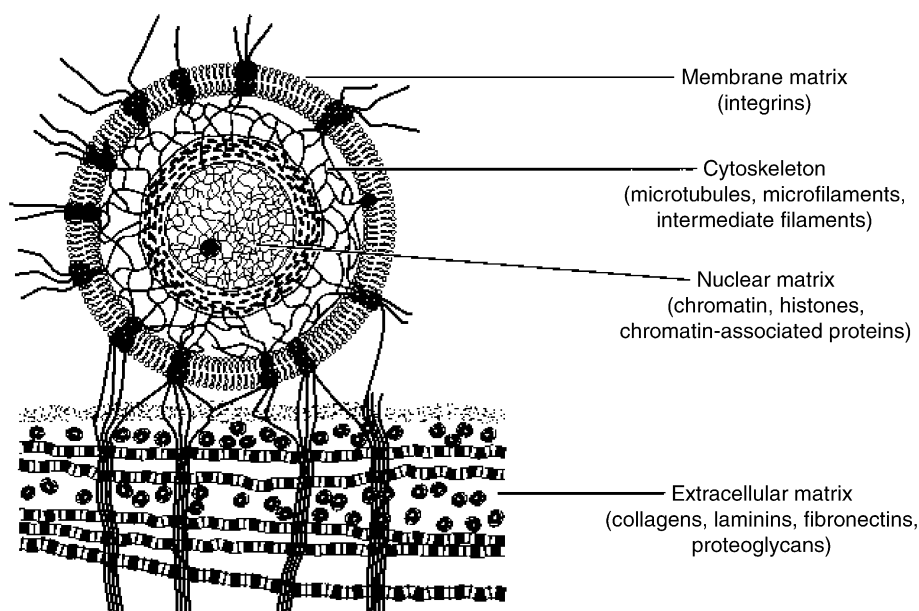
The theoretical basis for traditional psychotherapy relies on interactions with the mind, which is usually conceived of as being located within the brain. Therefore, most attempts at deriving a theoretical basis for traditional psychology and psychotherapy are focused on the nervous system. A vast amount of research has gone into establishing the neural correlates of consciousness, often referred to as NCC.

It has always been assumed that the traditional psychoanalytic process involves treating the places within the nervous system where traumatic or

other kinds of memories are stored. In short, mental issues and psychoanalysis are both mental processes. The very term “neuropsychology” suggests that the nervous system is the place, and the only place, to look for the underlying psychological phenomena.

A complementary view is emerging from modern discoveries in cell biology and biophysics. Previous reports have described a non-neural whole-body communication system that reaches into every part of the body (Oschman, 1993, 2000, 2003). Termed *the living matrix*, this system consists anatomically of the collagen-rich extracellular connective tissues (fascia, tendons, ligaments, cartilage, bone, etc.) as well as the cytoskeletal matrices within cells and the chromatin network within nuclei (Fig. 1). Taken together, the components of this “system of systems” make up the bulk of the human body and give it form, shape and texture at all levels of scale, from microscopic to the whole person. Pienta and Coffey (1991) summarize evidence for the vibratory nature of the living matrix.

It has now been proposed that this primordial and evolutionarily ancient system is part of the physical substrate of memory and of the subconscious, unconscious and intuition (Oschman, 2005). This is not a new idea. Consider, for example, the research of Candace Pert, summarized in her presentation entitled, *Your Body is Your Subconscious Mind* (Pert, 2004). Decades of research on neurochemistry showed her that the molecules of emotion, and their receptors, can be found everywhere in the body, on every kind of cell. The so-called



**Figure 1** The living matrix consists of the extracellular connective tissues shown at the bottom, and the fibers that connect across the cell surface to the cytoskeleton and nuclear matrix. For details, see [Oschman \(2000\)](#).

“neuropeptides” and their receptors were not, as previously thought, confined to the nervous system. Mind, as revealed by “neurochemistry”, had proven to be a whole-body phenomenon. Hence, Pert’s conclusion: that the body is the subconscious mind!

Another biological rationale for the concept of the equivalence of mind and body derives from study of the behavior of the simplest of organisms such as bacteria and protozoa. The activities of microorganisms, and their directed movements, called tropisms, all take place in the absence of nerves and synapses. The emerging view is that the living matrix is involved in a primordial form of “consciousness” predating the evolutionary development of the nervous system. From the perspective of neurochemistry, [Pert \(1999\)](#) points out that the simplest of organisms synthesize the same emotion molecules as vertebrates.

We have known for a long time that single celled organisms, entirely lacking in nerves or synapses, are demonstrably able to sense and respond to their environments. These microorganisms therefore meet the criteria for sentience, which is defined as having sense perception or being conscious. Moreover, bacteria, “headless, heartless, brainless, with a primitive cell for an entire body, one DNA molecule for a chromosome and a life span measured in minutes”, are capable of learning and remembering ([Pietsch, 1983](#); [Koshland, 1980](#)). The same is true of protozoa ([French, 1940](#); [Applewhite and Gardner, 1973](#); [Fukui and Asai, 1976](#)). For example, paramecia can learn to swim in patterns and navigate mazes, and therefore have short-term memory ([Applewhite, 1979](#)). It is generally agreed that the protein cytoskeleton of these organisms must serve as their “nervous system” and is therefore a miniature solid-state biocomputer.

[Virchow \(1858\)](#), the founder of cellular pathology, pointed out that each of the trillions of cells in the human body is an “elementary organism”. In *The Mammalian Cell as a Microorganism*, [Puck \(1972\)](#) reinforces this perspective on the basis of a lifetime of study of cells in culture. Since microorganisms possess a primordial form of consciousness, that consciousness must be present throughout the human body.

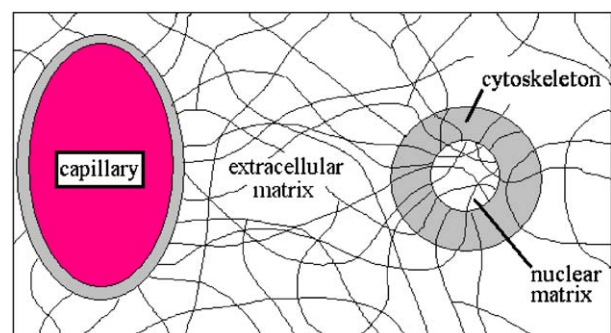
## Extracellular communication and intelligence

A key step in the evolution of higher organisms was the development of the extracellular sugar polymer

coatings of the bacteria, viruses and protozoa. Like cilia and flagella, these “antennas” extended the “reach” of microorganisms into their environment. In colonies of bacteria and simple colonial organisms, this extracellular “fuzz” provided mechanical and informational linkages that gave rise to new possibilities and properties. As the evolutionary process led to more and more sophisticated cell assemblies and colonial organisms, the primordial matrix system acquired new properties. From the systems perspective, these are called emergent or synergistic or cooperative or collective properties. Such attributes arise when an assembly acquires properties that are not present in the individual components. A science of these emergent properties is referred to as synergetics (e.g. [Haken, 1973](#)).

In a classic treatise on *Matrix and Matrix Regulation*, [Pischinger \(1975\)](#) suggested that the fundamental unit of life in vertebrates is a triad: capillary/matrix/cell (see [Fig. 2](#)). According to Pischinger, this triad has unique and revolutionary capacities for healing as it allows for organized or non-chaotic energy to spread suddenly throughout the organism to create new structures, functions and order. This concept is important as a frequent observation of practitioners of energy psychology, bodywork, energetic and movement therapies is a sudden and beneficial “sea change” or “phase change” spreading throughout the organism as a trauma or other disorder is resolved, and the whole body reintegrates accordingly.

Albert Szent-Györgyi devoted the last quarter of his illustrious scientific career to the study of a separate communication system based on the energetic properties of proteins such as collagen, the dominant component of the extracellular matrix ([Gascoyne et al., 1981](#)). Szent-Györgyi was convinced that there are rapid and subtle aspects of life that cannot be explained by slow moving



**Figure 2** [Pischinger \(1975\)](#) suggested that the fundamental unit of life in vertebrates is actually a triad: capillary/matrix/cell. We now extend his concept of the matrix to the cell interior (cytoskeleton) and nucleus.

chemical reactions and nerve impulses (Szent-Györgyi, 1978). Instead, he thought the protein fabric of the body is a semi-conductor network. Oschman (1993) concluded that the acupuncture meridians are the system Szent-Györgyi was referring to. Ho and Knight (1998) reached a similar conclusion.

Recent research has shown that the acupuncture system is an extremely high-speed communication network, with signal velocities hundreds of times faster than nerve conduction (Jones, 2004).

Much of the living body is composed of highly regular arrays of molecules that are best characterized as semi-conducting liquid crystals. Of these materials, British biophysicist Ho (1999) has stated:

Liquid crystallinity gives organisms their characteristic flexibility, exquisite sensitivity and responsiveness, and optimizes the rapid noiseless intercommunication that enables the organism to function as a coherent coordinated whole.

The emerging view is that the human body is essentially an assembly of some trillions of "micro-organisms" and that each cell, as well as the entire assembly of cells, contributes to conscious and subconscious processes (Oschman, 2005). What we refer to as consciousness, then, is an emergent property of some billions of cells forming the nervous system and some trillions of cells in the primordial living matrix. Because it is far more ancient in terms of evolutionary history, "matrix intelligence" may be far more sophisticated than neuronal intelligence. Of course, it is difficult for us to relate to this concept from our experience, since our ordinary mode of relating to the world is through our neuronal consciousness. Matrix consciousness is fast, silent, noiseless and generally imperceptible. We only know about this system from occasional glimpses of the remarkable consequences of its operations.

What is being proposed here is that what we refer to as the *subconscious* is the sum of the sophisticated intelligence and communications of the vast array of cells and matrices, both neural and non-neural, making up the body. These concepts are worthy of exploration as they can help us understand phenomena that have been elusive in the past, and can contribute new insights for virtually all branches of therapeutics.

To appreciate the NNCC, it is worthwhile to summarize previous research on the nervous system and consciousness. The history of neuroscience is studded with brilliant breakthroughs and insights that did not live up to their expectations in terms of helping us establish the one and only mechanism of consciousness. This is not to say that each of these

historical developments *failed*. The process is more like putting together a puzzle, with each discovery representing one puzzle piece. When a particular piece does not live up to initial expectations, it does not mean that it should be discarded. Ultimately, we may find that a more complete answer to our question of the nature of consciousness arises from a synthesis of many perspectives. Consciousness probably arises from communication and cooperation between all systems and subsystems in the body.

## NCC: a brief historical survey

In spite of a century of neuroscience research and a "decade of the brain" during the 1990s, we are still unclear about the nature of physiologic consciousness and its relations to learning, memory, intelligence, the subconscious, unconscious and intuition. If there is a pattern to the search for the "seat of consciousness", it is that of an ever-widening focus, from a reductionistic search for individual components of memory and consciousness (molecules, organelles, synapses, cells, specific neurons, cell assemblies or the whole brain) to broader pictures of how the parts work together in relation to the whole organism and its environment. Here we summarize some of the major contributions of key scientists involved in the history of neuroscience. This is not an exhaustive survey of the history of neuroscience. Instead it is intended to show how elusive the phenomena of memory and consciousness have been.

Bernstein (1902, 1912) theorized the nerve resting and action potentials, leading to dramatic progress in electrophysiology. When combined with detailed anatomical studies of the brain and central nervous system by Spanish anatomist Ramon y Cajal (1906) and Italian anatomist Golgi (1906), there arose the promise of an eventual solution to the problem of what thinking and consciousness really are.

The discovery of the electroencephalogram by Berger (1929) seemed to provide a tool that would quickly reveal the fundamental mechanisms of brain function. While electroencephalography continues to be a useful clinical method, it never fulfilled its promise of showing us precisely how the brain works.

The German evolutionary biologist Richard Semon is credited with the concept of the engram, or physical memory trace, that must be established somewhere within the brain when learning occurs (Schacter, 1982). Lashley (1950) followed up on this concept in his famous monograph, *In Search of the*



*Engram*. Lashley studied learning in rats, systematically removing different portions of the cerebral cortex to find out which areas contained the memory traces the rats needed in order to navigate a maze. In his 1950 paper, Lashley reported his theory of equipotentiality: all areas of the cortex seem equally important in learning, and no area is more important than any other. He liked to quip that it is not a question of where the memory trace is located, but where it is not. Lashley was never able to demonstrate the engram, and ended up stating, "the necessary conclusion is that learning just is not possible".

In *The Organization of Behavior*, Lashley's student, Hebb (1949) suggested that engrams were actually properties of cell assemblies. He employed the "reverberatory circuit" concept of Lorente de No (1938) to account for the ability of local circuits to remain active for a period of time after a stimulus. Hebb's theory supported the view that learning is accomplished by the development of interconnections between neurons throughout wide areas of the brain.

In the 1950s, Canadian neurosurgeon Penfield (1975) discovered that electrical stimulation of specific points on the surfaces of the temporal lobes could elicit meaningful, vivid memories. It seemed that he had found a physical basis for the engram. Modern researchers now recognize that the points Penfield stimulated are involved in memory, but are not the actual sites where memories are recorded.

The equipotentiality theory was revived by Pribram (1969). Like Penfield, Pribram was a neurosurgeon. Along with other surgeons, Pribram noticed that individuals who have significant areas of their brains removed, to stop the spread of disease or to prevent seizures, usually retained virtually all of their long-term memory. It seemed that there was no specific area of the brain that was the locus of memory.

The invention of the hologram by Gabor (1948) gave Pribram a physical basis for the concept that memory is a distributed rather than a localized property of the brain, since any portion of a hologram retains all of the information recorded in the whole (Pribram, 1969). But the holographic theory has not been widely accepted, in part because a hologram requires a laser beam to record and read it, and it has been challenging to find a laser in the brain.

Hodgkin (1963) and Huxley (1963) researched and substantiated the ionic basis of the resting and action potentials described earlier by Bernstein. They received the Nobel Prize in 1963, along with Sir John Carew Eccles. The Eccles model of

consciousness explained how the brain could process and integrate sensory information and memories to give rise to the conscious moment. The process was thought to involve interactions between thousands of millions of nerve cells in the pyramidal cortex. Each cell has thousands of synapses coming from countless other cells. Signal processing takes place when each cell "polls" all of the incoming signals and determines which is dominant: excitation or inhibition. The result of this polling process is a decision as to whether the individual neuron should fire and send a signal to other neurons, or remain dormant, until the next polling takes place a small fraction of a second later. Consciousness arises from the sum of the decisions made in thousands of millions of such neurons (Eccles, 1963).

It was faith in this model that enabled Crick and Koch (1998) to legitimize and open up the field of consciousness studies as a respectable area for scientific exploration. Crick expressed the view that, "subjective experience arises from cerebral processes" that can be elucidated. Thus began the modern search for the neuronal correlates of consciousness, or NCC. Stated differently, the brain is a soft computer. When we determine what all of the circuits are doing, we will understand consciousness. Several generations of neuroscientists founded their careers and reputations on research on the concepts summarized above, which came to be known as the neuron doctrine: the brain's neurons and synapses are components of a computer-like switching circuit:

brain = mind = computer.

Few neuroscientists are aware of the breakthrough research of neurologist Brown (1991, 2002), who developed a *process model* of consciousness called microgenesis. From the study of aphasia, or disorders of neural processing, Brown was able to piece together a whole-brain concept of how the conscious moment unfolds on the basis of brain structure, sensory inputs, motor activity and personality structure. Consciousness is described as a bottom-up unfolding of the conscious present that is envisioned to progress through the various structures within the brain, from the brainstem to the neocortex. Microgenesis is described as the "rapidly flickering recapitulation of an individual's entire past as the content in which each moment of the now is experienced" (Juhan, 2002). In this model, the *emotional meanings* of images falling on the retina are extracted *before* the images are perceived in the visual cortex. Hence, traumatic memories and other aspects of personality structure continuously select or sculpt

our perceptions of the world, on a moment-by-moment basis, *before* we become conscious of “the world out there”.

Brown’s model, microgenesis, can help us understand how the new methods of energy psychology can resolve post-traumatic stress without the lengthy efforts of trying to recall and recapitulate the moment of trauma, as has been done in traditional psychotherapeutic approaches. Brown’s model is a significant break from other efforts that aim to pinpoint the locations of specific memory traces in the brain. Instead, microgenesis is a *process* that unfolds in a bottom-up manner, involving virtually all parts of the nervous system. The concepts presented in this paper are intended to extend Brown’s model to the entire body, and explain how and where traumatic memories are recorded.

## Non-neural correlates of consciousness

Before the modern surge of research into consciousness, Sir John Eccles changed his mind about the whole endeavor. In 1993, Eccles concluded that the model for which he had received the Nobel Prize was inadequate to account for non-physical and transcendent properties of mind: feelings, thoughts, memories, intentions and emotions (Eccles, 1993). This was not welcome news to many in the neuroscience community. Eccles suggested that it might be necessary to move to a smaller level of scale, to quantum mechanical properties, to locate the ultimate connection between mind and brain. Other researchers therefore began to examine consciousness from the perspective of the quantum wave properties of matter (e.g. Yasue et al., 1991; Goldberg, 2005).

While keeping the quantum perspective in focus, Hameroff and others began to explore cellular and subcellular aspects memory. A major focus was the microtubule, which was considered a promising structure for storing memories. Neurons and many other cells throughout the body are packed with microtubules, which are polymers of the protein, tubulin and microtubule associated proteins (Hameroff, 1988). Perhaps microtubule information storage and processing gives rise to cellular memory throughout the body.

Other researchers explored atomic memory (Brewer and Hahn, 1984) and still others suggested that we cannot really understand atoms until we understand the cosmos, and vice versa (Kolb et al., 1986). Perhaps memory is everywhere! This concept is encompassed by a cosmic holographic

paradigm articulated by various authors (e.g. Wilber, 1982; Talbot, 1991).

In a little known essay published in 1961, the distinguished molecular biologist and neuroscientist, Frances O. Schmitt, suggested that the popular and highly successful electrophysiological techniques would never resolve the questions of memory and consciousness. Instead, he pointed out the enormous memory storage capacity of the various biopolymers within and around cells. A polymer such as RNA, composed of 1000 monomers, with four different kinds of monomers, could have  $4^{1000}$  variants. A polymer such as a protein, with 20 monomer species (the 20 amino acids found in nature) could have  $20^{1000}$  different variants! (Schmitt, 1961). Of course the large protein, collagen, is the major protein of the extracellular matrix or connective tissue. Schmitt’s ideas open up the possibility that collagen, the most abundant protein in the animal kingdom, can store vast amounts of information.

Since collagen is a dominant component of the body’s movement apparatus—the musculoskeletal and myofascial systems—vast amounts of information related to movement may be polymerized into the physical structure of the connective tissue. Movement therapists can readily relate to this hypothesis. Moreover, most of the collagen in the body is packed together in a virtually crystalline arrangement. Collagen and other arrays of semi-conducting molecules can, in principle, provide for sophisticated storage and processing of information.

Hence, we may conclude that the mechanisms of consciousness and its relations to learning, memory and intelligence are unresolved at the present time, in spite of considerable research. The work of the authors mentioned in this section certainly leads us to expand our searches beyond the brain and nervous system. Since consciousness is so elusive, the phenomena we refer to as the subconscious may be even more obscure. There is, however, a substantial basis for NNCC as suggested by Goldberg (2005).

## Matrix consciousness in action

A number of phenomena demonstrate the responsiveness and noiseless intercommunication referred to by Mae-Wan Ho. The martial arts provide spectacular examples, in which the practiced master demonstrates an ability to sense and respond to his or her environment with extraordinary speed and precision that clearly transcends

neuronal capabilities. Athletes and other performers also routinely make judgments and sophisticated movements that are ahead of neurological time and that are inexplicable in terms of established neuromuscular control systems.

For example, measurements of reaction time show that it should not be possible to hit a baseball. There is just not enough time between the instant the pitcher releases the ball and the moment it crosses the plate for a hitter to see it, determine its trajectory, and swing the bat to hit it (Slater-Hammel and Stumpner, 1950). To explain such phenomena, psychologists distinguish between "proceduralized knowledge" leading to responses taking place when *the body knows how to do something*, and "declarative knowledge" leading to responses taking place when *the conscious mind knows how to do something* (Allard and Starkes, 1991; Starkes and Allard, 1991). It has been suggested that proceduralized knowledge is a property of the living matrix, whereas declarative knowledge arises from conscious neural control (Oschman, 2003).

All of us have occasional glimpses of rapid and subtle phenomena taking place at the periphery of our consciousness. The reason it is difficult to come to grips with these phenomena on a regular basis is that our neurological consciousness is limited by the velocity of nerve conduction. In essence, the properties of the nervous system create a temporal "filter" that eliminates from our perception those events and processes taking place faster than the "rhythms of vision" that are built into our perceptual processing. For example, it takes nearly half a second for an image falling on the retina to create a perceptible image in the visual cortex, although we are generally unaware of this delay. Outside of our normal neurological awareness, a sophisticated illusion is rearranging events in time to provide us with a consistent concept of "now" (Nørretranders, 1999).

The thesis of this paper is that the new energy psychology techniques are effective because of the subtle ways they address consciousness residing within the *living matrix*. The intention is not to downplay the role of the nervous system and traditional psychoanalysis, but, instead, to describe and begin to explore this second system that has important roles in the development of the conscious present. The new techniques of energy psychology are providing additional evidence of the properties of this system.

To summarize, there is a substantial theoretical and experimental basis for the storage and movement and processing of information and energy within the microscopic internal skeletons of cells of supposedly simple organisms as well as all of the

cells in the human body. And these properties extend beyond the cell, to the extracellular matrix.

## Matrix/neurology relationship in trauma

Now we recall the question from the *Introduction*: where and when do the neurological and matrix consciousness interact with each other? In the context of psychology and psychotherapy, this question becomes one of the locations of the "defenses" or "barriers" that prevent the subconscious mind from expressing itself. The idea that this is a *barrier* is a definite mind-set in terms of exploring the interface. The "defenses" could also be more optimistically referred to conceptually as interfaces between our two "minds" that can be porous rather than impenetrable. If this is the case, it will have implications both for our understanding of where traumatic memories reside within the organism and for the application of our insights and intuitions in the therapeutic process.

One can look for the anatomical places where the two systems, the two "minds", the nervous system and the living matrix, interface with each other. The situation has some analogies with the search for the engram, which turned out to be everywhere. The living matrix system makes up the nervous system as well as the perineural connective tissue surrounding every neuron. The matrix is therefore everywhere physically and functionally continuous with neurons and all of their parts. It should therefore not be difficult for the nervous system to "listen" to the living matrix, and vice versa, for the matrix to "listen" to neuronal processes. This "listening" can involve the matrix keeping tabs on the larger scale phenomena such as the conduction of action potentials and synaptic transmission, as well as the more subtle processes, including those taking place in the cytoskeleton, nucleus and at the quantum level.

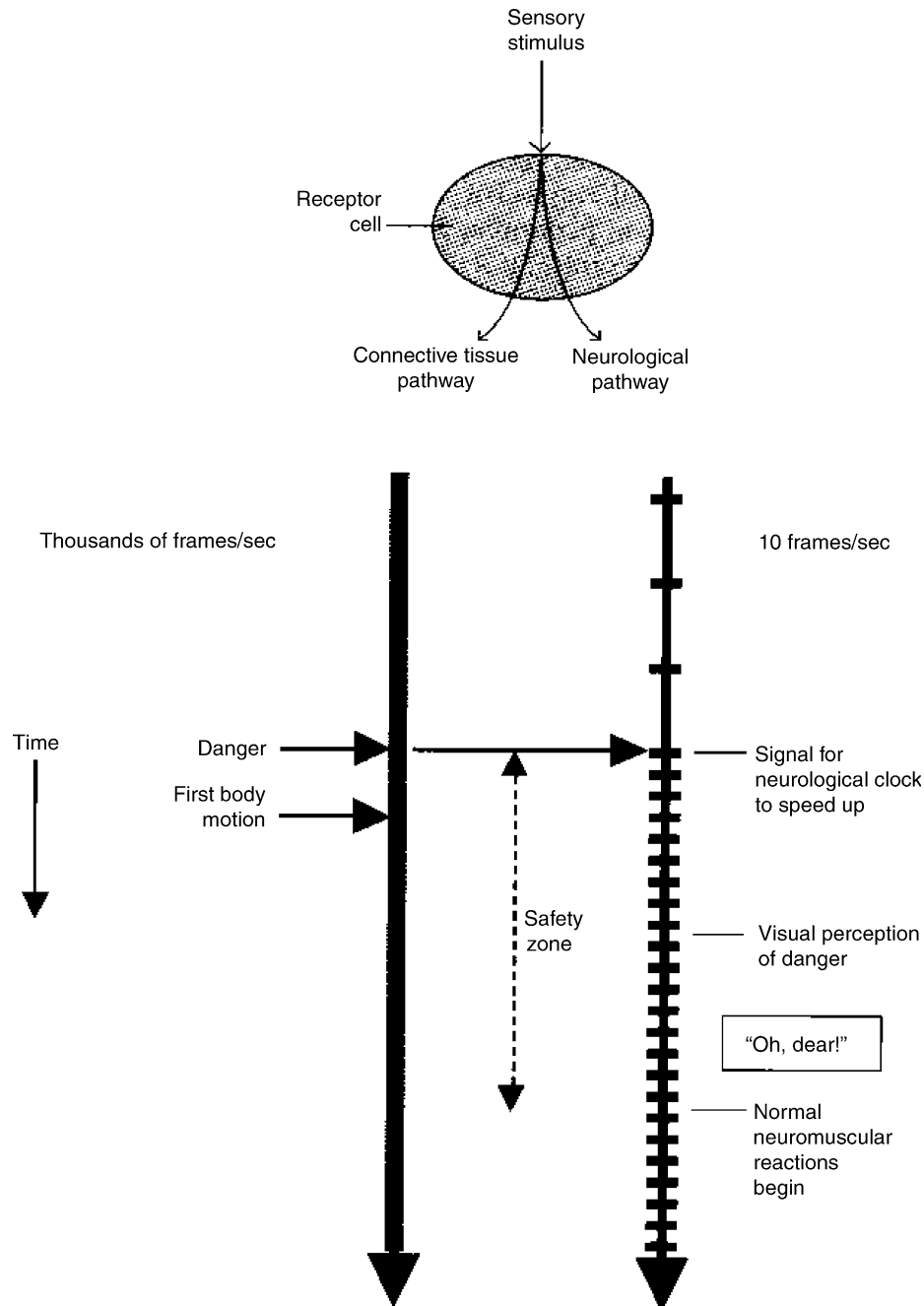
*Energy Medicine in Therapeutics and Human Performance* (Oschman, 2003) summarizes evidence that the living matrix system has the capability of sensing and responding with appropriate movements in situations where very fast reactions are required. This happens in athletic events and other performances when complex decisions must be made extremely rapidly, or where the functions of various systems in the body must be perfectly coordinated. The matrix, it has been proposed, is also the "first responder" when the organism is faced with a life-or-death situation or a trauma such as physical or emotional abuse. Following this logic, it can be suggested that



emotional trauma is first registered by the matrix rather than by the nervous system. This can expand the focus of trauma therapy from the nervous system to the entire body. It is possible that the tedious nature of traditional psychotherapy, in contrast to energy psychology, may be due to the fact that psychotherapy indirectly addresses the

places where traumatic memories reside. The traumatic lesion or emotional memory may not, in fact, reside in the nervous system, but in the living matrix.

Figure 3 provides a conceptual scheme of the temporal interactions between the matrix, shown on the left, and the nervous system, on the right.



**Figure 3** A conceptual scheme of the temporal interactions between events taking place in the matrix, shown on the left, and the nervous system, on the right. It is proposed that all sensory information detected by receptors splits into the two pathways shown at the top of the diagram. The matrix is faster than the nervous system and therefore serves as an early warning system, capable of sensing impending events before sensory signals have reached conscious awareness. This is the system that stores physical and emotional trauma and is the place to focus trauma therapy. For details, see the text.

The diagram at the top shows how information detected by a sensory receptor activates two pathways. The pathway to the right is the well-known neurological circuit that can send a message to the brain or to other parts of the nervous system. The pathway to the left takes the same signal into the connective tissue/living matrix system. This is referred to as "the continuum pathway" because it can be propagated throughout the body (Oschman, 2003).

It is proposed that the matrix is the "early warning system", capable of sensing impending events before sensory signals have reached conscious awareness. It is further suggested that the matrix can initiate appropriate movements via direct energetic pathways to the muscles.

The conduction velocity and the fast "clock" or pacemaker for the matrix enables it to detect events in the environment far faster than the nervous system. In times of danger, extreme trauma, emergency or in a crucial moment in any performance, the "awareness" of the situation and body reactions arise first in the matrix. After a finite delay, the nervous system is activated. In times of crisis, the neurological clock speeds up, increasing the number of conscious frames per second. Because more frames are occurring per second, the experience is of "time slowing down". It takes a fraction of a second for the visual system to form an image of the impending danger and a bit longer for the seriousness of the situation to reach conscious awareness, shown in Fig. 3 as "Oh, dear!" There is a further delay before the onset of neuromuscular reactions to the situation. The living matrix, then, provides a "safety zone" that enables the body to begin responding to an impending crisis before the nervous system is engaged.

In his book, *Trauma Energetics: A Study of Held-Energy Systems*, Redpath (1995) noted that the trauma of an event is set in place in the fraction of a second before we are consciously aware of it. Years later, this energetic "signature" of the event continues to be referenced in the formation of every conscious moment, as described in Brown's Microgenesis theory. Oschman (2003) suggested that the energetic "signature" of a trauma is recorded prior to conscious awareness of the event, in the living matrix, outside of the thought and speech centers of the brain. Successful trauma resolution then depends less on recalling and verbalizing the neurological "records" of the event than it does on finding the record laid down in the connective tissue and cells of the living matrix the instant before the event was consciously experienced. The success of hands-on methods

in resolving emotional trauma then arises from meaningful interactions with the tissues where the traumatic structural patterns and cellular memories reside. Details of this concept are provided elsewhere (Oschman and Oschman, 1994a, b; Oschman, 2003).

## Practical implications

The problem facing the therapist specializing in emotional trauma is that the location of traumatic memories is not as immediately apparent as is a physical injury. Any wound to the flesh will have a hidden emotional component that persists long after the physical injury has been repaired. Psychotherapy and energy psychology are methods that aim to resolve issues that may be intricate and submerged.

Many therapists are highly intuitive and know exactly how to approach even the most severely traumatized patient, although it is often difficult for them to explain how they accomplish this. Explaining something that is natural and simple can often be challenging. Other therapists do not trust their intuitions and must therefore rely on a thoughtful analysis of their patient, or on a systematic diagnostic/therapeutic protocol. For both kinds of therapist, the message of this paper is simply that there exists a detailed theory of how intuition operates to process vast amounts of subliminal information to arrive at a "guess" that is, more often than not, quite reliable. In *Power vs. Force: the Hidden Determinants of Human Behavior*, Hawkins (1995) describes this as an inner subrational wisdom that enables us to know far more than we think we know; to recognize hidden patterns. Another message from Hawkins is that our subconscious decisions guide our lives far more than we realize.

Hence, it is possible that all of us actually "know" much more about the patient in front of us than we realize. *Blink: the Power of Thinking without Thinking* is the title of a valuable study of intuition (Gladwell, 2005). The book is a compendium of instructive examples of people making brilliant choices in an instant. Often these choices involve extremely complex situations in which it is virtually impossible to solve a problem by means of logical deliberate thought. Great decision makers in all areas are people who are able to transcend vast amounts of information or data relating to a decision and reach a conclusion that leaves everyone around them wondering, "How did you do that?" Those who are adept in making such

decisions are usually unable to explain how they do it. In these situations, neural processing and logical thought, with all their sophistication, simply do not work. A far more sophisticated and subtle processing system must exist, and this article suggests where this system is located.

Gladwell introduces the art of “thin slicing”—filtering the very few factors that matter from an overwhelming number of variables. *Blink* (Gladwell, 2005) and *The User Illusion* (Nørretranders, 1999) are invaluable resources for those who do not trust their hunches and intuitions. Not only are there good reasons that we all possess a very sophisticated system for collecting, storing and processing a vast array of subtle and subliminal information, but there are countless examples from real life in which this mode of decision making is obviously at work.

The living matrix is a pervasive system, consisting of both the nerves and the connective tissues and cytoskeletons of every neural and non-neural cell in the body. On the basis of the known biophysical properties of this system, we can visualize this as a high-speed solid-state information processor with capabilities that far exceed the brightest minds and fastest computers. Intuition can therefore be described as an emergent property of a very sophisticated semi-conducting liquid crystalline molecular matrix that is capable of storing, processing and communicating a vast amount of subliminal information that never reaches the nervous system and consciousness directly. A computer, with its software programs and memory and information storage capacities pales to insignificance in comparison with the evolutionarily ancient solid-state system that is expressed within every cell and sinew of the body.

Since the primary channels of this informational system are the acupuncture meridians, it is not surprising that there are energy psychology methods that involve tapping on key points on the meridian system. Such tapping will introduce electrical fields into the meridian system because of the piezoelectric or *pressure-electricity* effect (e.g. Lapinski, 1977; MacGinitie, 1995). Such currents, then, will be transduced into signals that will be propagated through the meridian/living matrix system for a certain distance, since the meridians are low resistance pathways to the flow of electricity (e.g. Reichmanis et al., 1975). The success of energy psychology approaches shows us that creating such effects can alter consciousness by erasing traumatic memories, which can be accessed electronically via the acupuncture meridian/living matrix pathways.

## Biological coherence and holographic processing

Biological coherence is a phenomenon that can help us understand trauma and the subconscious on the basis of the holographic paradigm applied to the human organism as a whole. It was the goal of a recent book (Oschman, 2003) to elucidate the relationship between *quantum coherence and conscious experience*, as described in an important article of that title written by the British biophysicist Ho (1997). Briefly, the theory is that the coherent “laser beam” of holographic consciousness arises within the highly ordered semi-conducting liquid crystals of the living matrix. These internal coherent oscillations (Fröhlich, 1988) reverberate within the organism, repeatedly referencing the status of the body and its environment. Each holographic laser signal “sweeps” through the whole body, referencing:

- the inner boundary of the body,
- the tensions and positions of all body parts,
- all sensations, both liminal and subliminal,
- the entire traumatic history,
- the personality structure,
- all cellular memories,
- all connective tissue memories.

And each “sweep” of the body has the possibility of erasing the traumatic history. Finally, each “sweep” reaches into every part, including into each part of the nervous system. Conceptually, this expands Brown’s microgenesis theory to the entire body. To the extent that the nervous system is an integral part of the matrix, and vice versa, there is no need to search for a specific point of connection between them.

It is the operation of this sophisticated high-speed system that enables the elite athlete or other performer or therapist to reach new levels of achievement. This can happen when the organism is in a state called *systemic cooperation*: all communication and energetic pathways are open and communicating so that every part knows what every other part is doing; every atom, molecule, cell and tissue is able to participate in an intended action (Oschman, 2003).

While trusting intuition is invaluable, it is equally important to learn about situations in which the quick intuitive flash is completely and even tragically wrong. Again, *Blink* (Gladwell, 2005) provides examples and insights into these situations. Of particular importance are the snap “judgments” we make based on various biases we have built up

over the years. These quick responses to a person or a situation can cloud or short-circuit the intuitive process and lead to completely erroneous conclusions. Successful intuitives, then, will know when to put the brakes on their snap judgments, or carefully edit their insights. All of these processes are enhanced by various mindfulness practices such as meditation. Kinesiological testing can also assist in the process (Diamond, 1979). Finally, intention is recognized by many schools as playing a large role in the successful therapeutic practice. One can add accurate insight and intuition to one's intentions for anything they are trying to achieve.

## Conclusions

At a recent conference on energy psychology (ACEP, 2005), a leading practitioner, Belleruth Naparstek, concluded: Post-traumatic stress is not mental, it is biophysical. Post-traumatic stress is not a mental health problem. They (the patients) may look mentally ill, but they are not. We have spent years looking at this incorrectly.

The inaccurate perception Naparstek is referring to stems from a misunderstanding of the reality of the body vs. the nervous system, and the perennially unsuccessful search for a location for mind within the brain. We have searched the brain and nervous system because we know how to study their large-scale electrical properties. We can now explore the rest of the mind by developing ways of connecting our instruments with the living matrix. This will enable us to confirm or refute the hypothesis developed here, that the subconscious and intuition arise from a discrete and anatomically describable whole-body semi-conducting energetic system. Regardless of how this hypothesis emerges from such biophysical testing, we will certainly learn a great deal about the subtleties of subliminal sensation and information processing.

It will be useful to summarize the hypothetical perspective being developed in this report in relation to the work of others:

The "lesion" created by an impending trauma is set in place in the living matrix an instant before we become consciously aware that something is going to happen (Redpath). It is the living matrix, and not the nervous system, that encapsulates the traumatic memory in an effort to limit the damage of overstimulation and challenge. Each moment of consciousness references our traumatic history and personality structure, so that we interpret the meaning of the world in front of us before we are consciously aware of that world (Brown). This microgenetic process repeats some 10 times per second.

Interpretations based on past traumatic events in our lives prevent us from experiencing what Redpath calls *serious* or *authentic action*. Serious action is defined as movement that is not referenced to, or motivated by, traumatic patterns, either within ourselves or in the culture around us. Since these traumatic signatures reside outside of the thought and speech centers of the brain, it is easier to unravel them if we do not enter into their narrative representations. Traditional therapy seeks the memories, ideas, sensations, feelings and thoughts as primary, whereas Redpath identified something prior and preverbal that can be reached directly.

Redpath's extensive experience with psychoanalysis was that no matter how well patients recalled critical memories, the patterns of their lives continued to be tormented and disrupted. The most difficult issues, he found, must be resolved by the organism itself, in the company of someone else, but without "help". The process can be facilitated if we can intuitively probe the subconscious of the patient and find the keys to dissolving disruptive aspects of the traumatic history and personality structure. The problem can be intricate, as parents can pass on to their children their own lineage of trauma in a process that is invisible and choiceless, beyond language and symbol (Redpath). Successful trauma therapy involves accessing subliminal signals from the patient.

Remarkably, stored trauma can be resolved as quickly as it was set in place. The body is continuously poised to resolve these afflictions and all of the physiological and emotional imbalances they create. This process goes to the deep energetic level that organizes or incarnates or underlies conscious experience itself. When this happens, the patient may suddenly know that the issue or discomfort will not bother them again. Energy psychology techniques introduce electrical activity into the acupuncture meridians, which are primary pathways used to scan the traumatic history during every moment of consciousness. These electrical signals can travel along the meridians and access and influence the places where traumatic memories are stored.

Redpath raises the vital question of whether it is these stored traumatic memories that are the real source of all of the world's horrors, both individual and collective. He

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