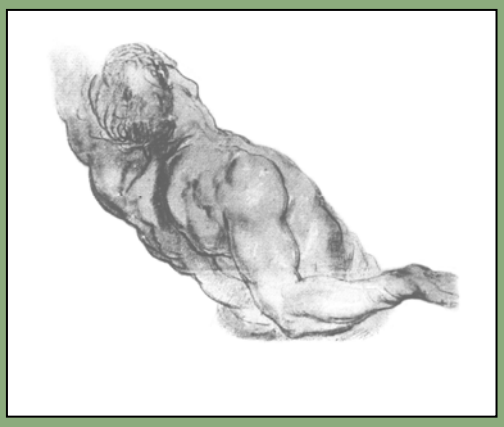
the usa body psychotherapy journal



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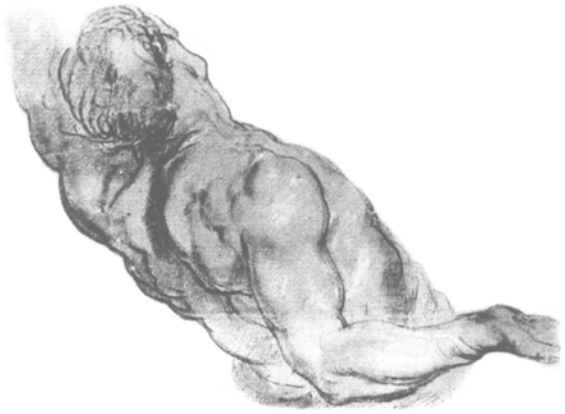

USABP Mission Statement

The USABP believes that integration of the body and mind is essential to effective psychotherapy, and to that end, its mission is to develop and advance the art, science, and practice of body psychotherapy in a professional, ethical, and caring manner in order to promote the health and welfare of humanity. (revised October 1999).

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What, if anything, do we know, and how do we know it? This perennial question has recently taken on an urgency which is far from academic. With managed care controlling so much of our patients' access to psychotherapy, we are hard pressed to "prove" that what we do in our consulting rooms makes some measurable difference. At the same time, as clinicians, we need to understand as much as possible about the functioning of the nervous system in order to make our interventions as precise and efficient as possible. Applied neuroscience speaks to both of these issues. Known variously as "psychoneurology", neuropsycho-analysis, etc. this burgeoning field is particularly relevant to us as body psychotherapists. It virtually erases the dichotomization of mind and body: their most important link is emotional processing. Neuroscience also critiques and refines much of what we have long done intuitively and at the same time helps to particularize and economize these insights and interventions.

Genomics performs a similar service for the nature/nurture issue, elaborating the complex interaction of genetics and environment throughout the life cycle. And, pre- and perinatal psychology extend our range of inquiry and knowledge to the periods before and immediately after birth. In our first three articles, these areas are addressed.

In the first section of a three-part neuroscience literature review and primer, Aline LaPierre guides us into this rapidly expanding, sometimes dense, literature. As she points out, contemporary neuroscience picks up a thread that interested Freud but that he was compelled by lack of research data, to drop. In his 1895 *Project for a Scientific Psychology*, Freud attempted to describe the human mind in terms of neurological mechanisms, but, finding available data inadequate, gave up objective neuroscientific pursuits and concentrated on the more subjective mental science of psychoanalysis. Modern neuroscience again takes up that challenge.

After defining basic terms and concepts, LaPierre explores such interesting topics as the comparative plasticity of emotional circuits in the brain to those relevant to math and vocabulary, pointing out that emotional circuits are much less malleable. She also discusses the two major functions of genes, dispelling the nature/nurture polarization by elucidating their functions as templates and transcriptors/translators, describing gene expression as the ongoing transformation of the genetic template to create a unique individual. In a concluding section, she also introduces us to what many in the field consider the "bete noir" of neuroscience, the concept of "consciousness": What is it? Where is it? How does it evolve? And finally, she calls on body psychotherapists to use their unique training to contribute their valuable insights to practical applications of neuroscience.

Ernest Rossi, in "The Genomic Science Foundation of Body Psychotherapy," explores how genes interact with the environment to modulate human behavior and how human relationships modulate gene expression. He sees psychosocial and functional genomics as the basis for all forms of psychotherapy, proposing that "gene expression can operate within the typical hour of body psychotherapy sessions….novel and stimulating mental and emotional experience as well as physical exercise can turn on gene expression in a manner that is fundamental for understanding the healing dynamics of body psychotherapy". Utilizing detailed diagrams, he proposes a four-stage model of clinical body psychotherapeutic interventions.

In "Integrating Pre- and Perinatal Psychology and Body Oriented Psychotherapy," Christine Caldwell points out the common features of both and then discusses specific contributions that each can make to the other. Marjorie Rand exemplifies this by outlining the stages of birth from the fetal perspective and then elaborates their impact on each of the Reichian segments, concluding with a case vignette.

Two Italian psychotherapists, Anna Maria Bononcini and Mauro Pini, in "Transference and Countertransference in Organismic Psychotherapy," discuss the evolution of the theory and practice of these concepts in Organismic Psychotherapy. They trace their roots from psychoanalysis to object relations through humanistic psychology to their present exposition by Malcolm Brown and Katherine Ennis Brown.

Our concluding paper, "Health Threatening *Bulimia Nervosa* and a Promising New Treatment Approach," utilizes a case history as a focus and framework. After an informative introduction to the sociology and psychology of eating disorders, particularly *anorexia nervosa* and *bulimia nervosa*, Christa Ventling uses a poignant case history, a work in process, to frame the theoretical and clinical issues that arise. She interweaves information about *bulimia* into her account, often in the form of psychoeducation of the patient, and also in pertinent commentaries on the treatment.

It is my hope that this volume will contribute materially to our knowledge as clinicians, not in the sense of facts or theories, but in helping us to formulate ever-expanding questions of both ourselves and those we strive to help.

Jacqueline Carleton, Ph.D.
Editor

A Neuroscience Book Review
[with a Primer of Terms and Concepts]

Aline LaPierre, Psy.D.

Abstract

This is the first of a three part review. I have approached the now extensive neuroscience literature with an educational objective, and an eye to its relevance to our somatic psychotherapeutic work. It is my hope that these reviews can serve as an orientation to this broad field and as a point of reference to one of its core integrative questions: What is the self in neurobiological terms?

In this issue, **Part I: Understanding the Mind-Brain and Nervous System** orients us to current foundational books that map the essential principles of neuroscience. In the next issue, **Part II: Affective and Developmental Neuroscience** will look at authors such as Antonio Damasio, Joseph Le Doux, and Jaak Panksepp, at Allan Schore's regulation theory, and at Dan Siegel's interpersonal neurobiology. Finally, **Part III: Neuroscience in Somatic Clinical Application** will explore the integration of neuroscience in body-centered clinical work

Keywords

Neuroscience – Book Review – Body-centered – Somatic Pschotherapy

Part I
Understanding the Mind-Brain and Nervous System

> *If we look at a tapestry closely, view it with a magnifying glass, we see the threads, but from a distance, it is composed of patterns; the threads are the brain, the patterns are the mind.*
>
> *– Russell Brain*

What exactly *is* "the mind"? How indeed does immaterial consciousness emerge in the brain from cell assemblies which are not that fundamentally different from those of other bodily organs? And what are the neural mechanisms that generate the awareness of our selves interacting with the outside world?

There is agreement in the neurosciences that the full meaning of the emerging information is not yet known, and that we are still far from having a complete picture of the brain and nervous system. However, a partial view is better than none, and the certitude also exists that an area of knowledge has been opened that has the potential to change how we think about ourselves forever. The idea that we now have the possibility of studying, in measurable units, the inner life of the mind generates palpable excitement and demonstrates that it is feasible to find the neurological correlates of traditional psychodynamic concepts, thereby setting them on a firm, organic foundation. In the field of somatic psychotherapy, there is hope that neuroscientific research can provide validating bridges that highlight the connections between body-centered and psyche-centered therapies.

Neuroscience (the scientific study of the nervous system) is a broad field that embraces behavior from the molecular to the psychophysical, ranging from the smallest structures—genes, cells, molecules, neurons—to whole-body structures such as the central and peripheral nervous systems, and even larger frames of reference such as thoughts, feelings, and fantasies. Llinás, in his book *I of the Vortex* (2002), writes that because this field of research is so widespread, neuroscientists tend to work within certain *orders of magnitude*. For example, a magnifying glass allows the observation of large single-cell neurons. Two orders of magnitude down, the microscope brings in the range of synaptic transmission, and down two additional orders of magnitude, the electron micrograph allows entry into the realm of the molecular. Inversely, two orders of magnitude up from the single-cell neuron begins the observation of organized systems and up yet two more orders of magnitude brings in the world of motricity and cognition that is recognizable as human behavior. Orienting to the order of magnitude helps navigate the continuum between the subtle small-scale molecular and neuronal worlds and the large-scale cognitive and emotional systems familiar to our felt experience.

Basic Concepts

The Mind-Brain Relationship *by Regina Pally.* New York: Karnac Books, 2000.

The Brain and the Inner World *by Mark Solms and Oliver Turnbull*. New York: Other Press, 2002.

A User's Guide to the Brain *by John J. Ratey*. New York: Random House, 2001

As scientific knowledge grows about the role of the brain in mental disorders, clinicians can no longer remain ignorant about neurobiology. For those of us who need a guided tour of the recent insights into the natural laws that govern our brain, our nervous system, and our inner life, these authors have created accessible maps to

orient our exploration and help us conceptualize neuroscientific clinical applications. The authors of these three books make no assumptions about the reader's previous knowledge and remain, without patronizing, within the bounds of a simple aim: to familiarize us, the nonspecialists, with the basic facts of how the brain produces our subjective mental life. Before we can feel comfortable in this new field, we need to learn its language and develop an understanding of the brain, its geography, and its mental functions. These books shed light on the core topics of neuroscience: evolution, neuronal dynamics, sensation, perception and emotion, memory, motivation and intentional action, language and the social brain, bilaterality, and what has been referred to as the Holy Grail of modern neuroscience, consciousness. Following a review of each of these three books, I have drawn on their overlapping information to piece together a summary overview of some of the core principles they cover.

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Originally written as a series of six articles for the *International Journal of Psychoanalysis* (1997), ***The Mind-Brain Relationship*** is a small, well-researched monograph with a broad perspective summarizing for the non-initiated the main thrust of contemporary neuroscientific concepts relevant to and shaping current clinical theories. As such, it is a good introduction for those beginning the journey of integrating neuroscience into their practice. Regina Pally, a psychiatrist, psychoanalyst, and UCLA professor sums up for clinicians, at the systemic level, the often daunting neuroanatomy, physiology, and experimental data and their clinical implications:
(1) how the past influences the present; (2) why we need to feel our feelings; (3) why making the unconscious conscious is therapeutic; (4) why verbalizing feelings is therapeutic; (5) why we need other people; (6) how the mind and body are integrated with one another; (7) why we tenaciously hold on to belief systems, and how belief systems influence our perception, thoughts, and behaviors; (8) how anything we do repeatedly or experience repeatedly can be incorporated at an unconscious level and contribute to habits, character, and our relationship with others; (9) how nonverbal behavior affects both patient and therapist in the treatment situation.

Pally begins with a description of how the development of a child's neural circuitry directly reflects and is shaped by early environmental influences and reviews how the brain actively constructs perception. She devotes a chapter to the structure, function, varieties and dynamics of memory, another to the unconscious and evolutionary roots of emotions and how emotional processing is the most important link in the mind-body connection. Yet another addresses the fascinating topic of hemispheric asymmetry and specialization, using the new information to offer insights into clinical phenomena such as transference, projection, dreams, and hallucinations. She closes the book by providing a comprehensive overview of the topic of consciousness research, the "final frontier" of neuroscience.

This little book performs a valuable service in that it delivers the main thrust of contemporary brain research. It brings center stage those topics that are of interest to psychotherapy and psychoanalysis, giving us, as body-psychotherapists, a foundation from which to transition our interests to more focused personal explorations.

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Gathering and distilling vast amounts of information, connecting it to psychoanalytic theory, and presenting it in a way that can be understood by the neophyte without falling into a reductionist attitude is a veritable tour de force. In ***The Brain and the Inner World,*** Mark Solms, a neurophysiologist and psychoanalyst, and Oliver Turnbull, a Cambridge-trained neuropsychologist, cover much of the same territory as does Pally but from a different perspective. They approach the mysterious relation of body and mind with a focus on the neuroscience of *subjective* experience and span a greater order of magnitude, taking us full spectrum through the nested hierarchies of the small-scale neuronal world to the large-scale systems.

Entwined like yin and yang, knowledge of mind and brain, which has resided in the separate fields of psychology, psychiatry, and neuroscience, finds here a respectful blending. In his *Project for a Scientific Psychology* (1895), Freud had attempted to construct a systematic model of the functioning of the human mind in terms of its underlying *neurobiological mechanisms*. With the primitive knowledge of his time, he was not able to do so and eventually disavowed the project. Thus, for reasons of expediency, the subjective approach to mental science (psychoanalysis) split off from the objective approach (neuroscience), and since then, each discipline has developed along its own path. Today, we have come full circle; neuroscience has caught up with psychoanalysis and the movement is under way to bridge the historical divide and build interdisciplinary links. In order to understand how mental disorders arise and in order to develop increasingly efficient therapies, Solms and Turnbull make the case that clinicians can no longer afford to be ignorant of the complexities of the neuroscience of human subjectivity. The core of the book demonstrates that a substantial body of neurobiological knowledge now exists which is sufficiently advanced to be of interest to psychology, psychoanalysis, and I would add, somatic psychology.

The first chapter presents a summary description of the brain's anatomy and physiology. It is intended as a starting point and is frequently referenced by the authors as they flesh out the functional architecture of consciousness, emotion, and memory, and the laws that govern their workings. The book's value is in its clear presentation of fundamental principles. For example, that the brain is connected to two worlds, interposed between the internal milieu *within* and the external environment *without,* seems, on initial formulation, relatively obvious yet has far-reaching repercussions. Since everything we require to meet our inner needs is in the outer environment, and since this outer environment is largely indifferent to our inner needs (with the exception of good parents and loved ones), it is the brain's task to mediate between our vital internal requirements and the ever-

changing outer environment. Thus, the brain's job resides in its ability to guide our interactions with the outer world of reality and is thus critical to our survival.

Another important point is that the brain is the part of nature *that we ourselves occupy*. The authors reconcile the misleading mind-body dichotomy by pointing out that we humans have a unique dual observational perspective; while neuroscientists turn their scientific attention to *objectively* observing the physical organ of the brain and the workings of the mind viewed from the outside, psychologists study it *subjectively* from the point of view of what it feels like to *be* such a system. The authors view the correlation of these two points of view as the beginning of a new scientific discipline which they call *neuro-psychoanalysis*. The current success of neuro-psychoanalytic interdisciplinary groups have led Dr. Solms to initiate the creation, in 1999, of the journal *Neuro-Psychoanalysis* (www.neuro-psa.org/journal) published by Karnac, and to the establishment of an institute, a society, and an annual congress.

The authors survey the various research approaches used as neuroscience and psychology work to discover the common ground between the brain's tissues and its psychological processes. Although there are numerous techniques used in neurological research, neuro-psychoanalysis currently relies on studies of actual patients with brain damage as its principle method of investigation. In relating the effort to reliably link localized brain damage with corresponding impairment of mental functions, this book evidences the fact that we stand on the shore of an unmapped continent. As clinical and scientific reaches broaden, the authors leave us with the impression that we should be prepared for the emergence of undreamt-of directions. It is my hope that in the charting of new directions to set psychodynamic concepts on firm organic ground, body-centered psychotherapies will be able to formulate a meaningful contribution.

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From a body-centered perspective, there is a great deal of wisdom to gather from ***A User's Guide to the Brain***. John Ratey, Clinical Professor of Psychiatry at Harvard Medical School and bestselling co-author of *Driven to Distraction*, looks at the brain as a malleable organ whose development and capacity for improvement and change is a continuous, lifelong process. Using as an example the experience of Temple Grandin, who suffered from autism and became a world expert in animal handling, he shows how the adult brain is both plastic and resilient and can be strengthened as we exercise our ability to determine who we want to become. Ratey believes that, in order to approach psychotherapy more effectively, we need a new, multifaceted paradigm to define mental disorders. Each brain is the unique expression of a particular range of neurological dynamics. His view, that we are not prisoners of our genes or our environment, leads him to propose a model for analyzing human experience which addresses what he calls the "four theaters of the brain"; (1) perception, the gateway through which we receive information from our five senses; (2) attention, consciousness, and cognition, by which ill-formed cognitive networks lead to confused internal representations affecting how we represent the incoming world to ourselves; (3) brain function: movement, memory, emotion, language, and the social brain, which contribute to, and are molded by, conscious experience; and (4) identity and behavior: our decisions, behavior, and historical sense of self, which constitute the brain's output.

In an approach that is familiar to body-psychotherapists, Ratey proposes that in order to take neurophysiology into account, treatment should begin with tracking experience. A clinician, in his opinion, should begin by looking at how a patient experiences the world, focusing the primary diagnostic inquiry not on "How do you *feel*?" but rather on "How do you *perceive* and comprehend the world?" Since emotions are created by the physical firing of neurons in the brain, a clinician should delve below the emotional surface of feelings, first considering their biological cause and effect. For Ratey, the root of *e-motion* is "to move," and in a wonderful chapter on movement, he shows how our "higher" brain functions have evolved from movement and still depend on it and that purely cognitive processes are carried out by the same regions of the brain responsible for actual movement. Thus, he makes the argument for the need to understand movement in order to understand thoughts, words, and actions.

Following an easy narrative through the developmental, perceptual, and emotional aspects of the brain, Ratey takes an excursion into language and the social brain. We learn that social behavior is, in large part, a brain function like memory or language. Even though we typically think of capacities such as making friends, getting along with coworkers, and forming intimate relationships as learned, there is evidence that these social skills have a strong biological basis. Neurologists and neuroscientists have shown that damage to the cortex can affect one's ability to be empathic, that problems in the cerebellum can cause autism and its social ineptness, and that deficits in the right hemisphere can make it difficult to understand life's overall picture. Following discussions on the development of the social brain—why we are social, the role of cerebellum coordination, free will and the anterior cingulate gyrus, nonverbal cues and the right hemisphere, and the biochemistry of love and intimacy—it becomes clear that biochemicals in the brain influence the ability to engage in sex, love, bonding, and child-rearing, all fundamental social behaviors. For as much as individuals may need to fight or flee, they also need sociability. Understanding how our social brain functions brings answers to philosophical questions that touch the very core of our lives such as why we care for others or how we recognize friendship and intimacy. From the perspective of evolutionary adaptability, there is no doubt that we are designed for group living, and as we understand how the brain affects social functioning, we can improve our success as social creatures and learn to minimize the enormous pain that issues from socioaffective disorganization, deficits, and ignorance.

I found **A User's Guide to the Brain** to read as easily as a novel. It is filled with vivid imagery that enlivens otherwise dry concepts. Writing about synapses for example, Ratey describes how "like the outstretched fingers of God and Adam on the ceiling of the Sistine chapel, they remain separated by a small gap." Ratey concludes the book with a short chapter on the care and feeding of our brain. When all is said and done, we come away with the realization that the most important lesson we can learn about our brains is how to care for them, love them, and learn to use them to their maximum potential.

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A Primer of Terms and Concepts

Contained somehow in the cortical web is an enormous array of experiential memories and new, imaginative associations that lift our behavior out of the closed circles of reflex and instinct–lift us so high at times that it is entirely possible for liberated abstract thought to forget its own biological basis.

– Deane Juhan

Drawing on the viewpoints of Pally, Solms and Turnbull, and Ratey, and moving freely among their three books, I have attempted to condense and highlight some of the major terms, principles, and dynamics that are the groundwork of current neurological thinking. This brief, bare-boned primer, painted in broad strokes, intends to stimulate the curiosity and creativity of readers who need an initial orientation to the neuroscientific language and way of thinking, and who may be reticent to delve into a subject that, at first sight, might appear awe-inspiring and bewilderingly complex.

Genetic and Environmental Influences on Mental Development

Pally begins the neurological journey at the threshold of the nature/nurture debate. The reigning doctrine of modern neuroscience is that brain development is largely ***experience-dependent***. Pally suggests that although during gestation, and for a few months after birth, brain growth and development are mainly directed by the genetic code, the brain is born prematurely that is, it is unfinished at birth–and the genetic code is not sufficient to supply all the needed information. Therefore, it is *the interactions with the environment that stimulate the more precise wiring of neural connections.*

Solms and Turnbull bring an important element to this argument by describing how environmental influences impact the genetic mechanisms at the cellular level. Genes, they tell us, have two major functions: a ***template*** and a ***transcription/translation*** function. In their *template* function, which is mostly restricted to the genes of the sperm and ovum, they replicate the design of a new baby or ***genotype***, whereas in their *transcription/translation* function, they work in complex interactions with the environment to transform the genotype's coded DNA into an actual "you" or ***phenotype***. The environmental context opens the genotype to a wide range of manipulations, which in turn shape the phenotype. This transformation of the genotype's template potential into an actual individual, which is referred to as ***gene expression***, though it varies depending on the type of cell or organ involved, is linked to the unique environment in which each brain's development unfolds. Gene expression demonstrates how it is the fundamental nature of life to transform biology.

Therapeutically, these findings support the object relations psychological hypothesis that our early developmental experiences shape our subsequent psychological functioning. Experience-dependent evidence affirms the view that relationship complements the inborn instincts and gives a neurological explanation for the theory that a child transforms its caregiver's external regulations into internal mental representations within which are encoded the strategies for managing internal body states. Neuroscience affirms that the function of internal representation is not only mental, but because of its self-regulatory influence, psychobiological.

The Evolutionary Architecture of the Brain

Pally continues the mind-brain journey by traveling through the evolutionary architecture of the brain. It is important to remember that the brain is a physical organ that evolved *from the bottom up*, with the higher centers developing as elaborations of lower, more ancient parts, thus retaining features of its evolutionary ancestors–reptiles, lower mammals, and primates. Through the process of chance mutation and survival of the fittest, newer brain structures that perform more adaptive functions were built upon older structures, keeping those areas of our predecessors that had proved useful and slowly *adding complexity* and sophistication. First came the ***brainstem,*** which surrounds the top of the spinal cord and is preprogrammed to regulate bodily processes and vital functions of physiological survival such as the sleep-wake cycle, heart, respiration, body temperature. Next, our reptilian ancestors developed the ***basal ganglia***, responsible for behavioral-motor routines learned from repeated behaviors which then become automatic-such as riding a bicycle or playing the piano. Third, with the emergence

of mammals, came a ring-like section surrounding the brainstem called the ***limbic*** (Latin for *ring*) ***system***. Also referred to as the emotional brain, it is from the limbic system that emotion and the uniquely mammalian behaviors of nursing, parental care, and play evolved. The limbic system added powerful tools to upgrade our adaptation to the changing demands of the environment—learning, memory, and the beginning of socialization. Fourth, the ***cortex***, considered the most highly evolved part of the brain, fine-tunes our lower functions and brings in rational thought and the ability to strategize and plan long term. Its executive ***prefrontal cortex*** evidences the greatest degree of development with its capacity for planning the future, directing attention to a task, regulating affect, and controlling voluntary movement. It is fascinating that, in spite of this layered evolutionary architecture, in which the processing of experience is distributed simultaneously across neuronal groups in many different areas, the brain operates as a dynamic, integrated whole; for example, a simple perception such as seeing a cat traverses all regions of the brain.

Neural Assemblies

Within our 3-pound brain, which looks more like something one might find washed up on a beach than like one of the wonders of the world, each of the 100 billion neurons is capable of synaptic connection with 60,000–100,000 other neurons, a tremendous organization of neuronal configurations with almost infinite potential. The cortex alone, which contains about 30 billion neurons, is estimated to contain something of the order of 1 *million billion* connections. This teeming neuronal forest is governed by key laws that direct their organization into larger systems. All new information entering the nervous system, whether of internal or external origin, activates in the neurons to form unique patterns of interconnection, called ***neural assemblies***. The laws that direct neural assemblies provide the basis for important somatic principles:

- ***Hebb's law*** posits that "cells that fire together, wire together." If two neurons are electrically active at the same time, they will automatically form a connection. If they were already weakly connected, the synapse between them will be strengthened. This has important implications for our understanding of memory. Working memory for example, appears to involve reverberating circuits of interconnected cells that fire together in closed, self-reactivating loops. It is the maintenance of the firing pattern that *is* the holding in mind of information. This activity-dependent wiring of working memory produces an increased density of neural tissue and transforms short-term memory into long-term memory.
- When a new experience evokes a pattern similar to one already established, ***pattern-matching*** gives us the sense of recognition. *Perception happens through a comparison of past and present.* For perception to occur, the brain searches for a match between the incoming pattern of neuronal activity and patterns already stored in memory.
- Individuals experience ***qualia***, that is, a high-order discrimination of environmental features, i.e., green, hot, or round, and this, it is believed is a large part of what constitutes consciousness. The term ***quale*** refers to the experience of a particular property, and each property is processed *in its own separate region and neural networks*. It is not possible to experience a quale, say "green," in isolation of other attributes. The experience of qualia is highly personal and is based on the wiring and activity of an individual's nervous system.
- By an operation called ***reentry,*** the brain coordinates the stimuli or qualia entering in the separate regions of the brain, so that the individual groups of specialized neurons can interact rapidly and reciprocally with the other regions of the brain. For example, information being processed in the visual cortex automatically influences processing in the auditory cortex, and vice versa—what we see influences what we hear, and what we hear influences what we see. Given the absence of a computer-like central processor in the brain, it is believed that reentry could be the *unique*, *single most important feature* of higher brain organization, the vital component of integrated, complex cognitive tasks. If reentrant interactions are blocked, entire sections of consciousness disappear and in cases of trauma, unprocessed sensory information that remains in dissociated fragments may cause consciousness itself to shrink or split.
- We are born with an overabundance of synapses representing the *potential* connections between neurons that might be needed to create internal maps and models of the world in which we find ourselves. In the neonatal period, a ***pruning*** or ***parcellation*** process begins: Because of the experience-dependent development of neural circuits, neural paths that are activated remain, whereas those that are not used atrophy and die—a "use it or lose it" rule.
- For the development of normal perception, the cortex must receive specific kinds of stimulation within particular time-frames. For example, during the first year, there is a ***window of sensitivity*** for the development of attachment that mediates the capacity for self-regulation.
- Although there are specific windows of sensitivity, *brain growth is not exclusively limited to sensitive periods* or to early development. Over the lifespan, every part of the nerve cell alters its dimensions in response to a stimulus-rich environment. Studies have shown that throughout our lives, long-term repeated exposure to stimulation triggers gene transcription and translation of new proteins and stimulates the growth of new synapses.

- It appears that the brain's design strikes a balance between ***circuit permanence*** and ***circuit plasticity***. For functions such as math or new vocabulary, the brain exhibits a lot of plasticity, thus facilitating new learning. However, in the emotional limbic circuits, the brain exhibits more circuit permanence and less plasticity, which stabilizes psychological development. It is because of circuit permanence that children develop longlasting attachments and that we, as adults, continue to seek out and strongly respond to familiar sources of comfort and safety. The brain's plasticity is an essential feature of our capacity for learning and change.
- ***Bottom-up*** mechanisms of the central nervous system are involuntary, always unconscious, and related to the physical effects of environmental stimuli upon the body. In contrast, ***top-down*** mechanisms can be voluntary, conscious, and pertain to how memory, motivational relevance, emotion, attention, and imagery shape perception. It can be argued that babies mostly rely on bottom-up perceptual mechanisms.

Perception

How does the brain construct perception? Contrary to popular belief, the brain does not operate like a camera that takes in a whole scene. It is more like a *feature detector* that detects individual stimuli, such as edges, contours, line orientation, color, form, pitch, volume, and movement, and processes them in separate regions of the brain. Each and every perception is actively constructed from the building blocks of individual sensory cues *under the guidance and influence of emotion, motivation, and prior experience*.

The brain accesses the outer world in two major ways: (1) through the sense organs of vision, hearing, and somatic sensations, whose specialized receptors transform external conditions into nerve impulses; and (2) through the musculoskeletal motor system which uses our inner responses to act upon the outer world. Interestingly, the term *somatic sensation* defines a group of sensory modalities that include touch, pain, the ability to sense vibration and temperature, and muscle-and-joint position. Thus the five classical senses are condensed into three categories based on the three lobes located in the back half of the brain where their information is projected: vision to the occipital lobe, hearing to the temporal lobe, and somatic sensation to the parietal lobe. The sensory knowledge gathered from the external world follows a specific path. It is (1) integrated with previous experience, (2) transmitted from the back half of the brain to the frontal association cortex, and (3) balanced with information from the internal body.

Because perception evolved to facilitate adaptive and survival behaviors, economy and speed of processing is critical. The faster a brain detects food, foes, and mates, the better the survival chances. This need for efficiency prompted the development of a ***split perceptual system*** within the brain's architecture. For *quick survival-based responses,* one system, based on pattern matching from minimal environmental cues, uses the shortest possible route to pass sensory stimuli from the thalamus directly to the amygdala, which is poised, like an alarm, ready to activate the body's fight-or-flight hormones. This quick-response, emergency route bypasses the executive cortex, sacrificing accuracy and discrimination for speed, so that in a prey-predator world, it can make the difference between life and death. The second perceptual path seeks out detailed features for pattern-matching and is consequently much *slower*. Moving from the thalamus through the more complex executive cortex and on to the hyppocampus, this pathway provides the sensory discrimination that allows us to assess, regulate, and inhibit behaviors that, in the amygdala, are automatic responses based on summary information. This mechanism implies that conscious awareness helps diminish fear responses.

The split perceptual system follows a pattern-matching protocol: (1) To minimize effort, the brain makes a quick assessment with just enough detail for a "good-enough" match. If danger is assessed, the amygdala responds to this minimal information. (2) If no match is found, the brain proceeds to seek more information, until a match is found. (3) If no match is found, a new category of experience is generated, whose pattern is stored in memory for later matching.

Pattern-matching suggests an explanation for people's tendencies to confuse events in the present with events from the past or repeat past painful experiences. Because the brain initially looks for a good enough match between past and present events, we tend to jump to conclusions prematurely and "see" what we have seen before. Neurologically, it is not so much that we repeat the same experience but that we interpret current situations with a bias toward what has occurred in the past. For example, a child, seeing an animal never previously encountered, such as a raccoon, might say "cat" because it fits the general pattern of "furry animal" already stored in memory. However, with conscious focus on detail, a new category of animal will be generated. Greater perceptual accuracy develops by encouraging conscious attention to details in order to create new categories of experience. It follows that psychotherapy could be conceptualized as a method of treatment that pays conscious attention to increasingly specific details in order to develop greater perceptual accuracy and, when necessary, generate new categories of experience.

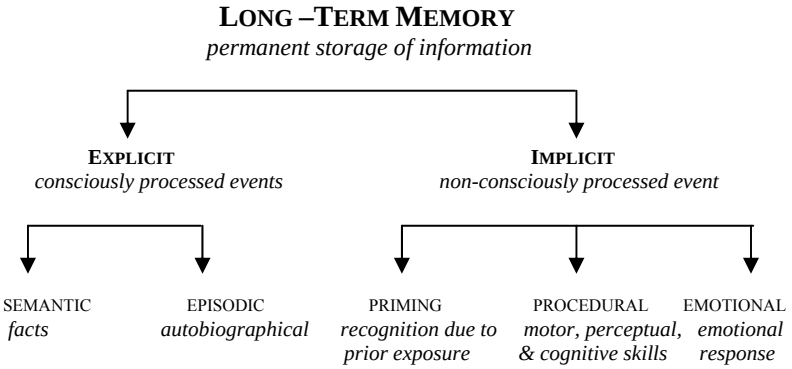
Memory

We take for granted our capacity to look from the present to the past and, at the same time, witness the passing of the present into the future, a mechanism called ***memory***. For neuroscientists, including Pally, Solms and Turnbull, and Ratey, the word *memory* is an umbrella term: For example, the memories of what we did last night, of how to tie a shoelace, of our telephone number, of how we felt when someone dear to us died are each mediated in a different brain system.

Although the content of the memory system is unique to each individual, its organization, like the perceptual system, follows a protocol structured according to a standard pattern: (1) acquisition of new information, or ***encoding***, (2) retaining of information, or ***storage***, (3) recalling information, or ***retrieval***, and (4) continuous ***consolidation*** of experience to deeper and deeper levels of storage. The steps to encoding, storage, retrieval, and consolidation are as follows: First, when a sensory organ is activated long enough, the incoming information becomes a perception and flashes, for less than 1 second, through ***iconic memory***. The perception then moves to the prefrontal cortex into ***working memory***, which can hold several relevant pieces of information simultaneously for a few minutes. Working memory is synonymous with the ability to consciously "hold things" in mind, and it appears that we can hold about seven units of information at any one time (hence 7-digit phone numbers). A kind of erasable work space, working memory not only takes in new information but also searches for and retrieves information stored permanently in ***long-term memory***. In response to these search-and-retrieve commands, information stored in long-term memory flows *backward* into working memory. Problems with the backflow of information from long-term memory can result in memory deficits—repression, for example, is thought to be a problem of information retrieval from long-term to working memory. Many higher cognitive functions, such as the comprehension of complex information, reasoning, decision making, and planning for the future depend on the ability to hold a number of pieces of information simultaneously in working memory. In fact, *intelligence* itself may, in part, be the result of the ability to juggle many possibilities at once via a competent working memory and its access to long-term memory.

Our long-term memory, which is the permanent storage of information within which information is consolidated, divides into two branches: ***explicit*** or *consciously* processed memory, and ***implicit*** or *nonconsciously* processed memory. It should not be surprising that long-term memories, because of the vast assemblies of neuronal connections involved, generally encode in more than one way and thus are very difficult to obliterate. It is important to remember that one does not have to retrieve a memory explicitly in order for it to actively influence cognition and behavior. The distinctions between explicit conscious and implicit unconscious memory are well established in contemporary neuroscience.

Usually, when we think of memory, we are thinking of the explicit branch that holds all the sights, sounds, smells, conversations, as well as thoughts and images *of which we are conscious*. The explicit branch subdivides into a ***semantic factual memory*** for personal and general facts that underlie our basic knowledge of the world—date of birth, who is president—and ***episodic autobiographical memory*** for specific personal events that uniquely define our lives—yesterday's visit to a friend, last year's birthday celebration. When we say "*I remember…*" we are speaking of an episodic memory that involves the literal "reexperiencing" of past events.



The implicit branch, on the other hand, stores information *without our awareness*, and consequently, even though it constantly influences our current functioning, it does not feel like memory to us. Implicit memory subdivides into ***priming memory***, or the memory of shape and form; ***procedural memory***, a kind of bodily memory for perceptuomotor and ideomotor skills, habits, and routines; and, ***emotional memory***, or the memory of our emotional responses. Because implicit memory is nonconceptual and nonlinguistic, it is difficult to investigate its content with verbal methods. Techniques that use empathic resonance are better suited to explore experiences encoded in implicit memory.

Transforming what we see, hear, feel, and think into memory is directly related to the *degree of conscious attention* we give to the information we receive. Emotionally arousing and personally relevant information is more

likely to be encoded. Likewise, memory retrieval is impacted by the way a person pays conscious attention to, and reflects upon, the information received, and the richness of associations made between what is to be remembered and what is already encoded. Much of what we believe to be perception and take for granted as "the way the world is" is, in fact, the world as we *remember* it. Memory retrieval is a *re*constructive process: *Every time a memory is recalled, it is treated as new information and an opportunity is created for its alteration.* A retrieved memory is not an exact replica of the past; therefore, through repeated retelling, a painful childhood memory can be altered to reduce its associated pain. The closer the experiential similarity between an encoded and a retrieval cue, the more the memory retrieval is enhanced. We are, for example, more likely to recall an event that was encoded in a sad mood if we are feeling sad. This close relationship between encoding and retrieval cues, called a ***state-dependent condition***, has a number of important applications in the narrative elaborations of verbal therapies as well as in the use of body postures and movement in body-centered approaches.

Although emotional arousal normally enhances memory retrieval, it is important to remember that excessively high levels of emotional arousal can *impair* memory. Traumatized individuals either do not have a high enough cortisol response to stress, or they experience autonomic hyperarousal and do not know how to regulate their overaroused autonomic nervous systems. In the case of severe trauma and posttraumatic stress disorder, high levels of circulating cortisol can cause cell damage, or even complete shut down, in the hippocampal system, precipitating impairments in explicit memory that cause it to become disconnected from implicit memory in such a way that events held in implicit (unconscious) memory are explicitly (consciously) forgotten. In these cases, memories are expressed in ways that are disconnected from the traumatic event, such as in dissociative behaviors, startle responses, nightmares, and visual and somatic flashbacks. It has become apparent from the current neurological research that merely uncovering memories psychologically is not enough—memories need to be carefully reconstructed neurologically. Because most individuals with psychological and developmental trauma have difficulties processing anxiety-activating information, treatment that focuses prematurely on the past can exacerbate, rather than relieve, traumatic intrusions, leaving some traumatized people incapable of finding flexible and adaptive neurological solutions.

Emotions, Motivation, and the Internal World

To grasp the potent hold of emotions on the thinking mind, we must remember that, because the rational cortex is rooted in the earlier emotional limbic system, cortical and limbic brains are inseparably intertwined. In effect, we have two minds—one that thinks and one that feels—the classic duality of the rational head and emotional heart. Pally impresses upon us the vast-ranging importance of emotions, in that they (1) coordinate mind and body by organizing perception, thought, memory, physiology, behavior, and social interactions; (2) connect mind and body both within internal experience and in attunement between individuals; and (3) guide mind and body to find adaptive, problem-solving solutions to the basic events of life, such as finding food, defending against danger, reproducing, caring for babies, and organizing social relations. Because using reflective cortical processes to regulate emotional arousal is now recognized as critical to healthy functioning, the axiom *I feel therefore I am* has become the current version of updated Cartesian thought.

Emotions are driven by primitive, instinctual mechanisms that come into balance through frontal-lobe voluntary regulation, an organization that somewhat parallels the psychodynamic equilibrium of primary and secondary processes under the aegis *id* and *ego*. On the primary instinctual id side, the ***basic-emotion command systems*** are the outcome of proven survival and reproductive values. Deeply conserved within the mammalian genotype, these "e-motions" or "evolutionary motions" are a heritage which evolved over eons of time and have been in existence long before *Homo sapiens* came on the scene; accordingly we share them with all other animals. Solms and Turnbull use Panksepp's (1998) nomenclature to describe the four basic-emotion command systems: (1) The ***seeking system***—which includes curiosity, interest, appetitive states, need-detection mechanisms, and lust/pleasure—whose job it is to switch on consummatory behaviors. It is through the seeking system that early experiences of satisfaction form the templates of our understanding of how life works. (2) The ***rage system***—activated by states of frustration triggered when goal-directed actions are thwarted—is a type of hot aggression associated with fight or affective attack responses, whose job it is to assure survival in competitive and predatory environments. (3) The ***fear system***, which generates, on the perceptual side, feelings of fear-anxiety, and on the motor side, flight and freeze responses. (4) The ***panic system***, associated primarily with panic, is also called the separation-distress system because it is now linked with loss and sorrow. This connection between panic attacks, separation anxiety, and depressive affect is presently substantiated, and the intimate association between this system and social bonding and parenting is becoming increasingly clear.

In an infinitely unpredictable world, these four inherited, emotionally driven behavioral stereotypes are not sufficient to fully modulate our responses to the unknown. Consequently, the basic-emotion command systems are not "hard-wired"; on the contrary, they are open to the influence of learning mechanisms and are designed with "blanks" to be filled in by life experience. For example, the seeking system is driven by an "objectless" drive so that we know *that* we need but not *what* we need. We are left to learn from experience which objects satisfy our needs and which do not.

Is it good or is it bad? Is it familiar, or is it unfamiliar? Such vital questions lead to a complex constellation of stimuli, ***appraisal of stimuli***, and ensuing behavioral responses. The ***autonomic nervous system,*** which divides into two branches operating in tandem, plays a most important role in brain-body appraisal of stimuli and resultant emotional interactions: (1) a ***sympathetic*** activating branch copes with external stimuli and mobilizes the fight or flight response, and (2) a ***parasympathetic*** rest and digestion branch tends to the internal environment responsible for repair, nutrition, growth, and homeostasis. The most important appraisal centers seem to be the ***amygdala***, which appraises external stimuli; the ***orbitofrontal cortex***, which weighs all incoming information against accumulated personal experience; and the ***anterior insular cortex***, which appraises thoughts and body sensations. Stimuli are either rewarding and give us positive emotions (i.e., happiness) or aversive and give us negative emotions (i.e., fear). *It is through our emotions that the body plays an active role in mental life*. In the simplest of terms, the emotional limbic system organizes our responses toward pleasurable and unpleasurable stimuli and guides us to find adaptive, problem-solving solutions to the basic events of life, such as finding food, defending against danger, reproducing, caring for babies, organizing social relations.

Is it safe or is it dangerous? Appraisal centers evaluate stimuli for their survival significance, and emotions originate in root impulses that prepare the body to take survival-oriented action. For example, fear enhances the likelihood that a stimulus will be interpreted as dangerous, anger brings the blood to flow into the hands to grasp a weapon, while adrenaline generates a pulse for vigorous action. All animals, including humans, *react with fear to aversive stimuli*. No matter what the aversive stimuli, the behaviors of anxiety and fear are the same in all, human or animal: racing heart, increased respiration, dry mouth, diarrhea, upset stomach, vigilance, jumpiness, easy startle, apprehension.

Emotional arousal causes a variety of brain alterations; high levels of emotions, as well as lack of emotion, lead to physical changes that can contribute to autonomic dysregulation and psychosomatic disorders. In response to external danger, emotional processing shifts *away* from the frontal cortex which is responsible for focused attention, motivation, and monitoring of goals, to the posterior cortex, responsible for vigilance. Reduced frontal activity seems to contribute to the apathy and lack of concentration associated with major depression. Intense emotion and stress-related illness are often accompanied by cognitive complaints such as impaired memory, diminished concentration, and difficulty thinking coherently. In chronic states of high autonomic arousal, constant elevated levels of cortisol can impair the immune system, contribute to ulcer formations, lead to diminished activity or even atrophy of hippocampal cells, and cause damage to body tissues in the viscera and cardiovascular system. High emotional arousal can also trigger the physical symptoms of anxiety and panic such as muscle tension, heart palpitation, increased blood pressure, and difficulty breathing; in turn, the autonomic dysregulation of the lungs and intestinal function may play a role in such conditions as asthma and irritable bowel syndrome. The list of dysfunctions caused by emotional deregulation continues to grow: Obsessions and compulsions seem to be caused by a fixed neural switch in a brain area that monitors the environment for danger; addictions, eating disorders, and alcoholism stem from dysfunction in the brain's reward system, whereas disorders on the anxiety spectrum (anxiety, panic, phobias), disorders of affect regulation (bipolar, dysthymic), borderline personality disorder, and many others are increasingly seen as rooted in the neurobiologically induced affective chaos that may have its origins in early failures of attachment or breakdowns of the environment.

In turn, these ***internal body*** imbalances call an individual's attention to his or her internal world and override, sometimes dangerously, his or her ability to tend to the external world. The internal body, more particularly the operation of the viscera—respiration, digestion, blood pressure, temperature control, sexual reproduction, etc., which are all responsible for the maintenance of life—is of critical importance for understanding the world of subjective emotional experience. There is very little cortical conscious control in the autonomic innervation of the viscera, yet visceral experience is at the core of the sense of self and the ability to change.

The key to mastering emotions lies in the ability to give ongoing attention to interoceptive states as they occur, even in the midst of turbulent sensations. Although the brain's anatomy does not allow us to control the primitive emergence of our emotions, we can more readily learn to control how long and how appropriate our emotional expression will be. Since it is now known that consciously attending to verbalizing an experience enhances cortical activation, it can be argued that psychotherapeutic approaches modulate deeply ingrained emotional responses by teaching the neocortex new, containing responses for those signals. Even though the limbic circuitry still sends its signals, the neocortex can learn to inhibit autonomic reactions. This clarifies why dynamic techniques help patients increase insights by exploring the link between their present conscious experience and unconsciously held, in-the-gut, neurologically encoded affective memories.

Bilaterality

In a healthy brain, right and left cortical hemispheres are lateralized for specialized functions but operate collaboratively. The right hemisphere "knows" through grasping the emotion, intent, and background context of what is expressed and accomplishes this *outside* of consciousness. The left hemisphere contributes linguistic and causal understandings, which occur *in* consciousness. Because feelings and words mutually interact to enhance each other, psychological treatment needs to include attention to the nonverbal emotional cues as well as to the

verbal content. Putting sensations and feelings into words increases the ability to regulate affect, and because access to emotion enhances the ability to arrive at the linguistic meaning of experience, both are of equal importance. Particularly useful in this respect are metaphors that contain sensory, imagistic, emotional, and verbal elements that activate both sides of the brain simultaneously. This being the case, Solms and Turnbull take great care to dismantle any belief that the right brain is the seat of the unconscious or the left of consciousness. For the most part, it appears that the primary process of the unconscious id has more to do with the primitive "state-dependent" subcortical structures than with the "channel-dependent" information-processing functions of the cortex, whereas the ego's secondary process inhibitory function is more appropriately linked with *both* frontal lobes.

Deficits in interhemispheric transfers give rise to problems. According to Pally, a functional disconnection from *right to left* leads to ***repression***, in which emotion-laden experiences cannot be adequately verbalized. As a result, very early affective experiences may remain inchoate and impossible to verbalize, and distressful affects will be insufficiently processed. A functional disconnection from *left to right* leads to ***disavowal***, in which patients can speak about emotional events but deny their emotional significance and potency. Patients may know that they are having certain feelings, such as sadness over a loss, but cannot access any "felt" experience of their emotion.

The Special Problem of Consciousness

Science has always tried to eliminate the subjective, yet in the case of consciousness, subjectivity itself has become the subject of investigation. All three books discuss the mystery of consciousness at length. Pally gives an excellent account of the historical journey taken in the quest for its understanding. Solms and Turnbull make the argument that evaluating and knowing what we feel *is* the function of consciousness, for without consciousness, how can we know our feelings. Ratey highlights the importance of the inexorably intertwined link between consciousness and *attention*, a complex function that filters out and balances perceptions and attaches them to emotional significance based on how they relate to our internal categories of experience. For events to be conscious, they need to be held in attention and to be significant to the self. Becoming *more* conscious seems related to the ability to pay attention.

How much of mental life is conscious? Freud lived in an age when consciousness and mental life were thought to be identical; he was one of the first to claim that conscious mental life is only a part of the mind and that most mental operations are unconscious. Today, there is controversy among several competing models of consciousness and exploring them is somewhat like the blind men's exploration of the proverbial elephant: Based on the part of the elephant they touch–trunk, ear, leg–the blind men imagine diverse animals.

The issue of consciousness is often framed as a body-mind problem: How does matter become mind? It is good to know that, amidst the contention, and even if for different reasons, neuroscientists seemingly agree on one point: They all reject the idea of a mental-physical dualism. Some scientists center the debate around the question of whether we are dealing with a computational device operating on binary (yes-no) signals, with the brain as the "hardware" and the mind as the "software." Others argue that the "soul" cannot be reduced to biology, or that we do not yet have sufficient knowledge to put forth a theory of consciousness, while yet others believe that consciousness is a function of the brain in the same way that digestion is a function of the stomach. One theory contends that lower-level neuronal processes lead to ***emergent properties***, that is, properties that are causally explained by the behavior of the elements in the system, but are not the property of any of the elements in the system–for example, the liquidity of water comes from the H_2O molecule in which neither hydrogen nor oxygen is liquid. Another theory argues that just as electricity is not caused by the movement of electrons but *is* the movement itself, so causation and identity of conscious states are one and the same so that the physical and the mental cannot be separated. Yet another theory views the brain as a complicated nonlinear system capable of self-organization: The brain does not respond directly to incoming stimuli like a reflex action, but is continuously constructing its own neural activity patterns in response to real time interactions. Thus, the brain adapts to and synchronizes with the external stimuli it encounters, a feedback system called ***circular causality.*** This inventory is but a small sample of the numerous theories and illustrates how, for all of the current knowledge, a theory of consciousness remains elusive. Tribulations attendant to its elucidation continue to occupy researchers.

Is there a *where* to consciousness? We are trying to connect "something out there"–the brain– with "something in here"–our own individual experience happening within us, the conscious observer. Seeking to solve the mystery of consciousness has raised the issue of ***localization***, the attempt to correlate behavior with specific brain regions. The issue of localization which might, on the surface, seem to have an obvious solution, is not a simple matter. For example, there is extensive evidence that certain structures in the brainstem are critical for generating a global state of consciousness: A tiny group of tightly connected nuclei, roughly the size of match heads, called the ***extended reticular and thalamic activating system*** or the ***ERTAS***, run up the brainstem, which is itself approximately the size of a human thumb. It is remarkable that when damaged, this tiny region of the brain leads to the obliteration of consciousness and to deep coma yet, it is also clear that the ERTAS is not the seat of consciousness. The search for where sensory input comes together to create a meaningful story faces a key

dilemma in the ***binding problem*** which attempts to solve the fact that although composed of modular specialized areas, the brain integrates these separate signals into a whole unified experience.

As a result of such challenging complexities, there is a growing consensus that consciousness is not a unitary thing, nor is it an "all or nothing" phenomenon. Unconsciousness gradates into consciousness and unconscious mental contents have an effect on consciousness.

Presumably, primitive organisms do not have consciousness; they respond with "hard-wired" inborn reflexive behavior, which brings us to consider the *why* of consciousness. When no salient or meaningful change occurs in the environment or within oneself, we stop paying attention. Consciousness provides a means of noticing changes and flexibly choosing the most adaptive response to those changes. In self-reflective consciousness, one's self becomes the object of perception so that patterns of behavior and interpersonal interactions can be reflected upon. As a result of the adaptive flexibility afforded us by consciousness, we are open to learning, growth, and change.

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Biopsychology & Neurogeography

I hope that your brain enjoys learning about itself. –John Pinel

Biopsychology (Fifth edition with CD Rom)) *by John P. J. Pinel.* Boston: Allyn & Bacon, 2003.

Mapping the Mind *by Rita Carter*. Berkeley: University of California Press, 1999.

If you are ready for a more detailed structural and functional understanding of neuroanatomy and an exploration of its psychological aspects, then Pinel's ***Biopsychology***, which comes with an excellent CD ROM, is a solid choice. Professor Pinel, a biopsychologist and award-winning teacher currently at the University of British Columbia, considers ***Biopsychology*** to be his major career-related accomplishment. Unmistakably, this textbook, now in its fifth edition, reflects the author's desire to bring biological psychology to life, and as such, is an enthusiastic labor of love. The book's defining feature is its unique combination of biopsychological science and personal, reader-oriented discourse. Although it is primarily a textbook, it is "untextbooklike" in its interweaving of the fundamentals of the field with clinical case studies, social issues, personal implications, and humorous anecdotes. The abundant, polished, and detailed illustrations that accompany the text are largely attributable to the talent of Maggie Edwards, an artist and professional designer, who is also Pinel's wife.

Neuroscience is a team effort, and biopsychologists are important members of that team. Some refer to this field of inquiry as *psychobiology*, *behavioral biology*, or *behavioral neuroscience*. Pinel prefers *biopsychology* because psychology stands center stage in this inquiry into the relationship of psychological processes and the brain. More than facts which are too soon forgotten, Pinel's intent is to teach productive ways of thinking biopsychologically. Consequently, the book is organized around four major thematic objectives: (1) To assist readers in making a transition from being passive consumers of biopsychological claims to becoming *effective thinkers* who take nothing at face value. (2) To think creatively about *clinical implications*. Much of what is learned about the functioning of the normal brain comes from studying diseased or damaged brains, and conversely, much of what is discovered about healthy brains has relevance to the treatment of brain disorders. This interplay is highlighted throughout the book in the contexts of both pure and applied research with human and nonhuman subjects. (3) To anchor the reader in an *evolutionary perspective,* which has proven to be one of the cornerstones of modern biopsychological inquiry. It is by trying to understand biological phenomena through the activating environmental pressures and comparing the effects in different species that we humans have learned much about ourselves. (4) To familiarize us with the *new discoveries* of neuroscience that are currently fueled by the development of functional brain-imaging methods.

This is a book to refer to again and again as your comprehension matures. As an in-depth introductory textbook, Pinel goes into comprehensive explorations that overlap and extend the territory covered in the first three books reviewed: evolution, neuroanatomy, neural conduction and synaptic transmission, perceptual systems, the neuroplasticity of learning and memory, motivational systems and reward circuits, consciousness and attention, lateralization, language, cognition and emotion, research methodology, and psychopathology. In addition, the accompanying CD ROM contains animations, demonstrations, video clips, practice tests, and electronic flashcards—*and*, as an added bonus, each chapter offers a log-on referral section to websites that contain further information on the topics discussed.

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Functional brain-scanning machines are opening up the territory of the mind just as the first ocean-going ships once opened the globe, or as the first X-ray machines revealed our bones. These metaphors give perspective to the importance of the new imaging techniques that now make the internal world of the mind visible. Having a map is essential to any new journey, and ***Mapping the Mind*** brings news of the discoveries of the explorers who are charting brain function. Many explorers of the mind, such as Damasio, LeDoux, and Freeman,

have enhanced this book with their written contributions. Aided by an abundance of brain scans, diagrams, and illustrations, the author takes us on an unforgettable tour that meets the two criteria necessary for inclusion in this review: It assumes no prior knowledge, and it is comprehensible even to those who are new to the field.

Brain mapping fell out of grace along with phrenology and the use of psychosurgery (which included the shockingly primitive frontal lobotomy). It was replaced by a theory of "mass action," which held that complex behavior arose from the action of all the brain cells working together. Today, however, the technological ability to watch the living brain at work has given new life to the desire to identify which bit of brain does what; brain imagery has revived the belief in the biological basis of mental illness, along with the idea that we could relieve mental anguish by manipulating specific brain tissue. Brain mapping, according to this author, is providing the navigational tool required to control brain activity in a precise and radical way. No one, she writes, can reasonably observe the frenzied, localized activity in the brain of a person driven by an obsession or the dull glow of a depressed brain without questioning the physical etiology of illness and leaving behind a belief in the ineffability of soul sickness. Even though, in my mind, this point remains open to discussion, the detection of the physical signs of such complex qualities as kindness, humor, mother-love, and self-awareness is impressive.

If we were to draw a "you are here" sign on our map of the mind, it is to the frontal lobes that the arrow would point. In fact, arrow diagrams indicating various neural and chemical pathways are present throughout the book. The currents, chemical flows, and mysterious oscillations of brain activity are bound together in a dynamic system that does millions of diverse things in parallel. We are reminded that we are in the early days of mind exploration, and that we should view the current knowledge as having the same level of accuracy as a 16th-century map of the world. Surely a few dragons lurk along the edges, but, if we remember that we are entering largely virgin territory, our spirit of adventure should rise up– and those who prefer the well-worn paths should await the future.

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A Colorful Introduction to the Anatomy of the Human Brain *by John P. J. Pinel with Maggie Edwards.* Boston: Allyn & Bacon, 1998.

Human Brain Coloring Workbook *by Kapil Gupta.* New York: Random House, 1997.

Browsing the neurobiological literature, I came across two coloring books that each, in their own way, provides an enjoyable means of learning or reviewing the fundamentals of structural and functional neuroanatomy. The effectiveness of coloring as a method of active learning–in particular, to learn anatomy–is pedagogically well established. It is especially useful for those who require a more hands-on approach to memorize neuroanatomical details. Kapil Gupta claims that learning interactively through coloring takes less time than memorizing from textbooks.

Pinel's ***Anatomy of the Human Brain*** is composed of 72 learning units, with an average of four or five key neuroanatomical structures per unit. A proponent of the "less is more" philosophy, the author covers the brain structures using a two-perspective approach: Part 1 describes the location of the major brain structures; Part 2 explains their function and psychological purpose. As an introduction to the neuroanatomy of the human brain, this coloring book progresses in logical, easy-to-learn increments and offers several learning tools to promote self-study, such as a flap that folds over the illustration labels to promote self-testing, a list of key-term definitions to effectively summarize key points, and plenty of review exercises.

Gupta's ***Human Brain Coloring Workbook*** aims at a more sophisticated audience interested in clinical medicine, healthcare, research, and teaching. The book is targeted for the clinician, and even though I was initially predisposed to Pinel's coloring book because I thought of it as a companion book to *Biopsychology*, I appreciated the greater level of detail and broader organization of Gupta's book. Gupta supports the integration of anatomical knowledge into clinical application right from the beginning; he believes that it is not enough to know where structures are located, or even what their functions are, if you don't understand the clinical implications. So, for every structure, he includes an extremely interesting and useful section on clinical correlates. I also appreciated such additional material as a cross-sectional atlas of the brain and spinal cord with dimensional views from varying angles, and a detailed section on the cranial nerves. I found myself developing a better sense of orientation to the varying structures, perhaps because of the finer drawings and varied perspectives. Overall, however, you really can't go wrong with either of these coloring books; Gupta's book will work you harder, whereas Pinel's will not overwhelm you with too many details.

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Conclusion

Psychotherapists are clinical neuroscientists who create an individually tailored enriched environment to enhance brain development.
– Louis Cozolino

When I began reading neuroscientific literature, I fell in love with the vocabulary. Words such as *neural oscillation*, *parcellation*, and *sinusoidal waves*, like music, evoked in me a sensory resonance born of a mysteriously intangible recognition. Perplexed, I surmised that this terminology activated contact with a dimension of implicit experience where words bridge the passage of the body through the mind and the mind through the body. I became interested in exploring a rationale for these powerful, yet easily overlooked, responses.

It occurred to me that most of us tend to observe ourselves at the macro-level of organized cognitive and emotional systems and seldom, if ever, attempt to include in our range of daily attention the dynamic processes now observed and portrayed at the microscopic cellular or molecular levels. Do we, or can we, have a direct experience of ourselves in those smaller ranges, or are they simply too far out of the reach of perception and therefore fated to remain implicit and unconscious? To those who explore the body in its subtle dimensions via such approaches as Vipassana, Body-Mind Centering, Continuum, or Cranial Biodynamics, it has become apparent that focusing solely on macro systems of awareness curtails a rich web of direct biological experience that, when ignored, leaves us out of connection with the body's deep knowledge, ancestral wisdom, and healing potential.

We are still at the beginning of understanding the relationship between mental illness and its underlying neurobiological processes. By asking questions such as "What is feeling?" "What is consciousness?" and "What is the self?" neuroscience has moved research to an affective focus that seeks to penetrate the very heart of the body's subjective life. Through the lens of neuroscience, symptoms are increasingly seen as the dysregulation and disorganization of neural networks; as a result of this new research, there is a growing need to expand the conception of what constitutes viable and successful clinical interventions. The old idea of a predetermined and static brain, which from today's perspective appears to have been a kind of neural fatalism, is replaced by the knowledge of a neural plasticity that allows the brain to constantly reshape itself to meet new circumstances.

We are in need of clinical approaches that better utilize the neurobiological mechanisms of learning and change that are based on use and enriched experiences. As body-centered psychotherapists, our somatic perspective has trained us to consciously focus attention on subjective experiences that arise, bottom-up, from within the bodily self. We are in a unique position to contribute a distinctive point of view to clinical applications that (1) encourage an ever-growing interaction between consciousness and its biological roots, (2) challenge our assumed neurological limits, and (3) take us beyond the indelibility of developmental critical periods. It is hopefully more than a visionary dream to imagine that somatic psychotherapy can draw on its rich tradition to contribute valuable insights to the practical application of neuroscience with approaches that harness the plasticity of our nervous systems by stimulating neural connectivity, expand the inner reaches of the brain, regulate and control unnecessary destructive impulses, and enhance the interactive cooperation between sensations, emotions, and thoughts—and thus maximize the potential for gene expression and brain growth.

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Suggested Further Reading

The neuroscience literature is abundantly rich. Here are a few other vital books dedicated to furthering our knowledge of the foundations of this important field:

The Mind-Brain Continuum: Sensory Processes, *edited by Rodolfo Llinás and Patricia S. Churchland.* Cambridge: MIT Press (1996).

How Brains Make Up Their Minds, *by Walter J. Freeman.* New York: Columbia University Press, (2000).

Brain-Wise: Studies in Neurophilosophy, *by Patricia S. Churchland*. Cambridge: MIT Press (2002).

The Quest for Consciousness: A Neurobiological Approach, *by Christof Koch*. Englewood: Roberts and Company (2004).

A Universe of Consciousness: How Matter Becomes Imagination *by Gerald M. Edelman and Giulio Totoni.* New York: Basis Books (2000).

Wider Than the Sky: The Phenomenal Gift of Consciousness, *by Gerald Edelman*. New Haven, CT: Yale University Press (2004).

The Psychobiology of Gene Expression, *by Ernest L. Rossi.* New York: W. W. Norton (2002).

Biography

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The Genomic Science Foundation of Body Psychotherapy

Ernest Lawrence Rossi, Ph.D.

Abstract

This paper introduces the genomic science foundation of body psychotherapy ranging from Darwinian evolution and classical Mendelian genetics to the Watson and Crick molecular dynamics of DNA in human development, adaptation, stress and performance. Most of our genes are active players responding adaptively and cooperatively to the stimuli, challenges, stresses and traumas of our ever-changing daily activities. We outline how DNA microarray of research into gene expression will make it possible to define the specific characteristics and therapeutic values that distinguish each school of body psychotherapy on a molecular-genomic level.

Keywords

DNA – Genomic Science – Genomic Science Foundation of Body Psychotherapy – Trauma and Stress

Introduction: From Classical Genetics to the Functional Genomics of Body Psychotherapy

A recent issue of the popular magazine *Scientific American* told the story of how "gene doping" could be used to create superior Olympic medal-winning athletes by illegally injecting them with genes. Almost simultaneously the *New England Journal of Medicine* (Schuelke et al., 2004) reported the discovery of a human genetic mutation in a 5-yearold boy who is being dubbed "Baby Superman" because of his bulging arm and leg muscles. Meanwhile remarkable pictures of the "Belgian Blue Bull" were published to illustrate the "double-muscled" cattle that also have a natural gene mutation that enhances a rippled physique while reducing fat deposition. The common factor behind all these stories is the myostatin gene that controls the normal checks and balances on muscle growth. Most professionals engaged in body psychotherapy, physical development, and the rehabilitation therapies have not been prepared to understand the implications of these reports about genomic science for their daily work. In this paper I propose to fill the gap by introducing genomic science as a common foundation for the research and practice of all the body psychotherapies ranging from the classical medical model approaches of psychosomatic medicine, psychoneuroimmunology and sports medicine to the alternative and complementary models of mind-body healing such as acupuncture, Alexander, bioenergetics, chiropractic, dance and movement schools, Feldenkris, therapeutic hypnosis, massage, -Pilates, Rolfing, yoga, etc. (Young, 1997).

Most of us understand that classical genetics is the science of how physical and mental traits are passed on from parents to children. We all learned that the "laws of heredity" were first discovered about 150 years ago by the Austrian monk, Gregor Mendel who studied how physical traits such as the shape and color of peas were transmitted from one generation to another. Classical genetics is concerned with how the genes that make up the *genotype,* or *genomic level* within each cell of the body, are transmitted from one generation to the next as the biological basis of observable traits that make up the *phenotype.* Mendel studied the distribution of such structural traits over the *broad time frame of many generations.*

Likewise, Darwin's evolutionary view of the biological origin of species explores how the principles of natural variation and selection of genes can account for the emergence of new forms of life. The evolution of new life forms is usually believed to require long time frames of eons. Many modern studies note, however, how important changes in the environment can alter the course of evolution in a generation or two. The recent discovery of the emergence of a new human mutation in the myostatin gene in "Baby Superman", noted above, is an example of this. Since the boy's mother was a professional sprinter with a brother and three other male relatives who were unusually strong, it is quite probable that she passed on one copy of the mutated gene to super baby while another came from his father.

Darwin, however, actually wrote that "natural selection is a daily and hourly scrutinizing, throughout the world," (Weiner, 1994, p. 6, ital. ours). Neuroscience now documents how novel experiences in everyday life can change gene expression within seconds, minutes, and hours to modulate our health and performance in all activities. These relatively brief time frames mean that gene expression can operate within the typical hour of body psychotherapy sessions. It is now believed that Darwinian variation and natural selection also operate on the level of human consciousness during memorable, stimulating, and enriching life experiences that turn on gene expression in neurons of the brain. Recent research demonstrates how novel and stimulating mental and emotional experience, as well as physical exercise, can turn on gene expression in a manner that is fundamental for understanding the healing dynamics of body psychotherapy.

Gene expression is the process whereby the information encoded in the sequence of nucleotides (the ladder-like steps illustrated in all images of the DNA molecule) that make up our genes is "transcribed" into messenger

RNA (mRNA), which is then "translated" into amino acids and proteins. This discovery of how the information of the DNA molecule can be replicated and translated into proteins is the foundation of molecular biology for which Watson and Crick received the Nobel Prize. These proteins make up the physical structure of the body as well as the molecular machines and messengers of life such as enzymes, hormones, and neurotransmitters that drive the dynamics of energy, physiological functions, and all our mental and body experiences. The link between physical activity, gene expression, proteins and physiology is now called "functional genomics." Figure 1 illustrates how the psychological experiences of mind, cognition and emotions are integrated into the broad circular process of functional genomics in the foundation of body psychotherapy (Rossi, 2002, 2004).

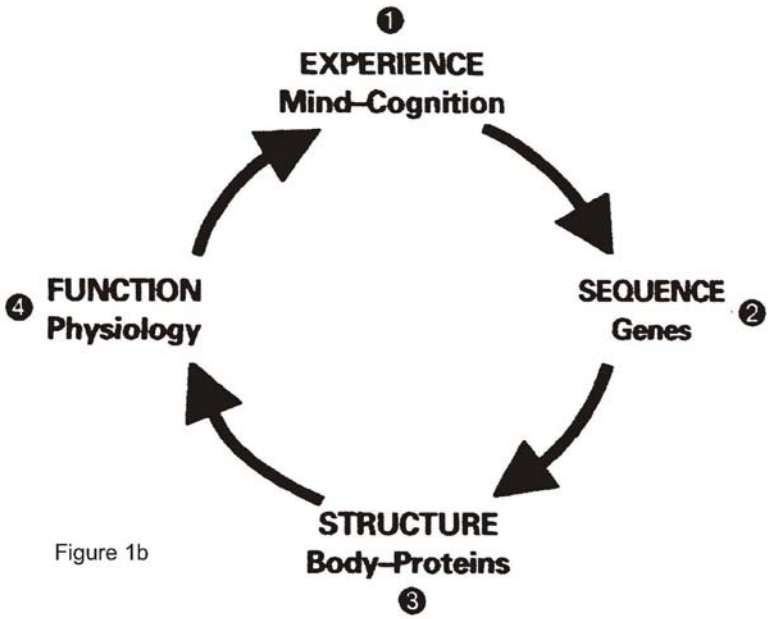


Figure 1: The 4-stage functional genomics cycle of body psychotherapy. Mind-body communication takes place at the molecular level between (1) mental experience (2) the code of gene sequences (3) the structure of body proteins and (4) the physiological functions.

The popular but erroneous idea about genes is that they are independent biological determinants and the source of physical traits, inherited abilities, dysfunctions, etc. – a view that gives rise to the nature-versusnurture controversy: Is human behavior and experience determined primarily by nature (genes) or nurture (life experiences)? Functional genomics resolves this controversy in a new way. Genes interact with the environment to modulate human behavior and vice versa. Stahl (2000) summarizes the implications of this interaction between daily behavior and genes as follows.

> But can behavior modify genes? Learning as well as experiences from the environment can give rise to changes in neural connections. In this way, human experiences, education, and even psychotherapy may change the expression of genes that alter the distribution and strength of specific synaptic connections. *Thus genes modify behavior and behavior modifies genes.* Psychotherapy may even induce neurotropic factors to preserve critical cells and innervate new therapeutic targets to alter emotions and behaviors (p. 37, Italics added).

The accumulating evidence that psychological experiences and physical activity modulate gene expression as well as vice versa is the basic insight indicating why functional genomics is the foundation and common denominator of body psychotherapy. In a much cited paper, Eric Kandel (1998), a Nobel Laureate in Physiology of Medicine in 2000, described the relationship between psychotherapy, gene expression and *brain plasticity*, which is the growth and changes in the organization of synaptic connections between brain neurons as a result of psychological experiences, as follows.

> Insofar as psychotherapy or counseling is effective and produces long-term changes in behavior, it presumably does so through learning, by producing *changes in gene expression that alters the strength of synaptic connections and structural changes that alter the anatomical pattern of interconnections between nerve cells of the brain.* As the resolution of brain imaging increases, it should eventually permit quantitative evaluation of the outcome of psychotherapy . . .. Stated simply, *the regulation of gene expression by social factors makes all bodily functions, including all functions of the brain, susceptible to social influences. These*

> *social influences will be biologically incorporated in the altered expressions of specific genes in specific nerve cells of specific regions of the brain.* These socially influenced alterations are transmitted culturally. They are not incorporated in the sperm and egg and therefore are not transmitted genetically. (p.140, italics added).

To draw attention to this little understood research that documents how psychological, social, and cultural processes can modulate gene expression, I have conceptualized the work of Kandel and others as the emerging science of psychosocial and cultural genomics illustrated in all the figures of this paper (Rossi, 2002, 2004). Many ordinary aspects of everyday life such as waking, sleeping, dreaming, work, stress, play, sports, exercise and all forms of activity, in general, are associated with unique profiles or patterns of gene expression. In the research literature in this area it has been called by many names such as *"Immediate Early Genes, Behavior State Related Gene Expression, Activity Dependent Gene Expression, and Experience Dependent Gene Expression."* These apparently different expressions all focus on varying nuances of a surprising but fundamental idea of psychosocial genomics and cultural genomics: *Most of our genes are not independent biological determinants of behavior. Most of our genes are active players responding adaptively, cooperatively and quickly from one moment to the next to the stimuli, challenges and contingencies of our ever-changing daily life.* The biologist, Ridley (1999), describes how thoughts, emotions, behavior and apparent "free will" modulate gene expression in health and optimal performance as well as stress and illness.

> It is time to put the organism back together again. It is time to visit a much more social gene, a gene whose whole function is to integrate some of the many different functions of the body, and a gene whose existence gives lie to the mind-body dualism that plagues our mental image of the human person. The brain, the body and the genome are locked, all three, in a dance. The genome is as much under the control of the other two as they are controlled by it. *That is partly why genetic determinism is a myth*. The switching on and off of human genes can be influenced by conscious or unconscious external action (p.148) ... genes need to be switched on, and external events—or free-willed behavior—can switch on genes (p.153)…*Social influences upon behavior work through the switching on and off of genes (p.172)…The psychological precedes the physical. The mind drives the body, which drives the genome.* (p.157, Italics added)

Table 1 introduces the broad perspective of genomic science as the scientific foundation of body psychotherapy by listing the various classes of genes that are currently recognized as being modulated by the deep psychobiological dynamics of behavioral, cultural, psychological, and social experiences. The most general and popular understanding of genetics that originated in the work of Darwin and Mendel are placed on the top two rows of Table 1. The relatively brief time frames of psychosocial and cultural genomics that are of essence in body psychotherapy (daily to hours, minutes and seconds) are in stark contrast with the much longer time frames of Darwinian evolution over eons, and Mendelian classical genetics over generations as illustrated by the example of the myostatin gene in super baby described above.

Table 1: The Genomic Science Foundation of Body Psychotherapy. A comparison of the wide range of time frames in the activation, functions, and domains of gene expression ranging from Darwinian Evolution and Classical Mendelian Genetics to the Watson and Crick molecular dynamics of DNA in human development, adaptation, stress and performance in daily life and body psychotherapy. (Adapted from Rossi, 2002, 2004).

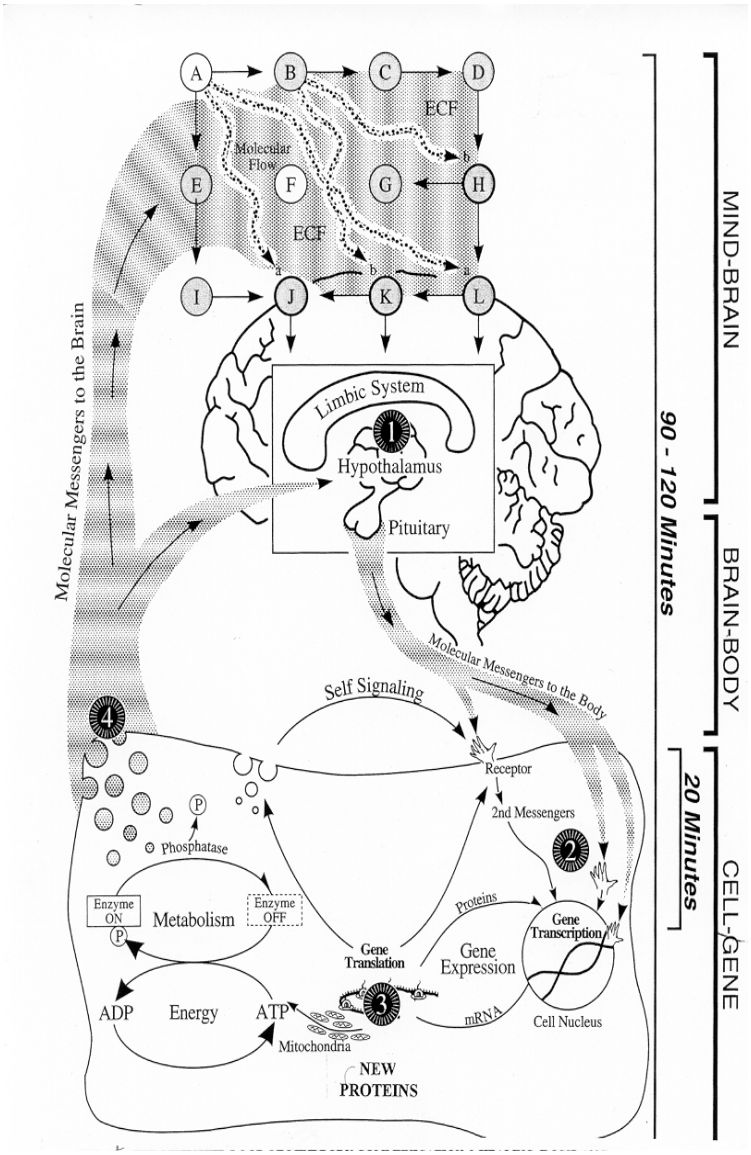
Gene Expression	Time Frame	Major Function	Research Domain
Evolution	Eons	Origins	Darwin
Inheritance	Generations	Replication	Mendel
Development	A life time	Molecular Biology	Watson & Crick
Housekeeping	Daily, Hourly	Metabolism	Functional Genomics
Clock Genes	Monthly, Daily	Adaptation	Chronobiology
Late activated	4-8 hours	Immune	Immunology
Intermediate & Early Active	1-2 hours	Environmental Interaction	Psycho-neuro-immunology
Behavior State-Dependent	Hours	Wake, Sleep, Dreams, Mood	Psychology
Activity-Dependent	Minutes, Hours	Brain Plasticity	Neuroscience
Immediate Early	Minutes, Seconds	Arousal, Stress, Creativity	Body Psychotherapy

Human Development, the Life Cycle, and Body Psychotherapy

The basic structuring and pattern of human development - how a single fertilized egg grows into a human being - is now understood as carefully scheduled profiles or patterns of gene expression and protein synthesis over a lifetime. Every living cell of the body contains all our genes (red blood cells are the exception). Why, then, are so many of our cells, tissues, and organs so obviously different in appearance, structure and function? The answer is that relatively few subsets of our total genome need to be expressed to generate the proteins that make up each type of cell in the body. The *structure, function* and *identity* of any particular cell is due to the particular subset of genes that are turned on and expressed during the cell's formation and daily interaction with its environment.

Figure 2 illustrates how the structure, function and identity of all cells are associated with circular loops of communication between the brain and body at all stages and levels of human development. Embryonic development, infancy, childhood, adolescence, adulthood, and death itself are now understood as outcomes of interactive patterns of communication between environment, gene expression, and protein synthesis over the course of a lifetime. While most research on the changing patterns of gene expression during the life cycle has been carried out primarily on lower animals, current studies are throwing light on the human life cycle from the earliest stages of the mother-infant bond to the aging process that have important implications for body psychotherapy.

Figure 2: The 4 stage mind-body cycle of communication at the molecular-genomic level. Four levels of the complex psychobiological domain of body psychotherapy. (1) Information from the outside world encoded in the neurons of the cerebral cortex of the brain is transformed within the limbic-hypothalamus-pituitary system into the messenger molecules that travel through the blood stream to signal receptors on all cells of the brain and body. (2) The receptors on the surface of cells transmit the signal via 2nd messengers to the nucleus of the cell where immediate-early genes signal other target genes to transcribe their code into messenger RNAs. (3) The messenger RNAs serve as blueprints for the synthesis of proteins that will function as (a) the ultimate healing structures - the *soma* of the body, (b) enzymes to facilitate *energy* dynamics and (c) receptors and messenger molecules for the *informational* dynamics of the cell. (4) Messenger molecules function as a type of "molecular memory" that can evoke state-dependent memory, learning and behavior in the neural networks of the brain that are encoded and transformed by body psychotherapy (illustrated as the rectangular array of letters A to L on the top).



Touch and the Body Psychotherapies: Mother- Infant Bond in Physical and Mental Development

In one form or another touch, sensation, movement, mental and physical activity are evoked in all the body psychotherapies. They all initiate neural stimulation, which turns on the gene expression/protein synthesis cycle throughout the brain and body as illustrated in Figure 2. The association between touch, gene expression and body psychotherapy is well illustrated by the pioneering research of Schanberg (1995) and the case of "A Sister's Helping Hand" (Rossi, 2002).

> The helping hand story begins with the premature birth of twins. Each of the twins was immediately placed in a separate incubator in accordance with the normal hospital rules. One of the twins, the weaker of the two, was not expected to live, however. A sympathetic nurse, following her heartfelt intuition and sense of sheer desperation, defied hospital rules by placing the two babies together in one incubator. Unexpectedly the healthier twin then threw an arm over her sister in an endearing embrace. The smaller baby's heart soon stabilized, her temperature returned to normal, and she survived. The twins thrived together and now, at home, they still sleep snuggling together.
>
> How can we account for what appears to be a heart warming miracle wrought by a newborn sister's helping hand? No one was around at the time to measure gene expression in the twins during their early life crisis. Current research in gene expression and human experience, however, is now finding an answer to how healing by touch is possible. Saul Schanberg and his colleagues at Duke University, for example, discovered how maternal touch could activate *immediate early genes* such as *c-myc* and *max,* which in turn activate a target gene called ODC (ornithine decarboxylase). Turning on the ODC gene leads to the synthesis of proteins that contribute to physical growth and maturation at the cellular level. Schanberg's (1995) research illustrates how deprivation of maternal touch for 10 or 15 minutes results in a dramatic drop in ODC gene expression and the physical growth of 10-day-old rat pups. Within two hours ODC activity is down 40% - where it remains until maternal touch returns. A full recovery of heart rate and even an over compensation to 300% of normal ODC gene expression in the brain is noted when the touch-deprived pups are returned to their mother. A graduate student stroking the pups lightly with a soft, tufted artist's paintbrush for 15 minutes was enough to turn on the ODC gene and other genes and hormones associated with biological growth as well. Surely if a graduate student can turn on gene expression in a baby mouse with a paint bush, one wonders, why can't we research to document how psychotherapists do it even better with all their approaches to the body ranging from acupuncture and bioenergetics to yoga?
>
> We have long known that baby human orphans fail to thrive and to grow physically when isolated in an institution without the normal amount of touch -- even when all other needs for warmth, food, and care are provided. This has been called *psychosocial dwarfism* or *non-organic failure-to-thrive.* When nurses supplied these infants with tender loving touch, however, their growth returned to normal within hours. This failure-to-thrive diagnosis was also documented by social workers investigating homes where the environment was described as psychosocially inadequate. It was found that failure-to-thrive babies in these homes had abnormally low growth hormone levels that are associated with low ODC gene expression activity. It was found that when the babies received adequate maternal touch, ODC gene expression, growth hormone, and physical growth returned to normal. Simple administration of growth hormone alone, without continued maternal touch, failed to improve the growth of these failure-to-thrive babies. (Rossi, 2002, p.16).

These associations between gene expression and hormones in early human development are typical of all other significant transition stages such as birth, puberty, menopause and the aging process. They are examples of the complex adaptive systems typical of all life processes that are facilitated by body psychotherapy. Many of the structural, functional, integrative, and energetic processes of body psychotherapy access this complexity across so many levels, ranging from molecule to mind, that they are difficult to sort out. A new way of exploring this complexity utilizes computers to sort through the DNA microarray data of functional genomics that identifies which genes are turned on and off during the transitions of daily psychobiological experiences of work, play, stress, sleep and performance in sickness and health (Rossi, 2002, 2004).

One still reads, for example, many dubious press reports touting how expensive hormone injections are the key to life rejuvenation, life extension, and perpetual youth. Such reports have not yet caught up with the genomics revolution. They apparently ignore the fact that hormones come from proteins that come from appropriate profiles of gene expression over time. Normal aging is the result of accumulated errors in the transcribing and translation of genes into their "cognate" proteins over a lifetime. Any truly fundamental and integrative approach to life extension and body psychotherapy must include the entire mind-gene cascade illustrated in Figures 1 and 2. The true molecular-genomic science of aging, rejuvenation, life extension and performance optimization is only now emerging from pioneering research into bioinformatics with DNA microarray data, which will provide a new research paradigm for body psychotherapy in the future.

DNA Microarray Research and the Dynamics of Body Psychotherapy

The invention of a new instrument, technique or technology can revolutionize our understanding of life. The telescope, microscope, EEG and now, in our own time, "The Human Genome Project" and the development of DNA microarrays -are expanding human perception of our own nature far beyond what could have been imagined previously. DNA microarrays or "gene chips" consist of wafers of glass or other bonding surfaces about halfinch

square that appear to be analogous with the silicon chips of computer technology. Each chip is lined with thousands of microscopic spots of short bits of DNA that can bond with any matching genes in a biological sample being studied. DNA microarrays could be used to assess the expression and coordinated profiles of activity of all the genes in the human body (~30,000) during any body activity or any form of body psychotherapy.

Gene chips provide the prospect of being able to identify the activity patterns of gene expression at any given moment in any condition or state of health or illness. For example, we can compare the differences in gene expression during cell growth versus a resting cell. We can explore the differences in gene expression between a normal cell, a cancerous cell or any other state of dysfunction. Physical activity, emotional arousal, and relaxation during the body psychotherapies all represent different states, which have different profiles of gene expression. This means that eventually we may be able to define exactly what we mean by arousal, activity, and energetics during the various states of healing in body psychotherapy with such DNA microarrays.

The 4-Stage Creative Process in Body Psychotherapy

Although there are great differences in the theory and practice of the various schools of body psychotherapy, I have proposed that they all manifest the basic 4 stage creative process originally described by Poincaré about a century ago. The relationship between these 4 stages of the creative process and the genomic science foundation of body psychotherapy is outlined here and presented in greater detail elsewhere (Rossi, 1972/2000, 2002, 2004).

Stage 1: Preparation, Data Gathering, Activities, Sensations.

Our genes are not always in an active state; different patterns of gene expression are turned on in everyday life by novel internal and external environmental signals to generate the proteins that are the molecular machines of life that do creative work. In stage one of the creative process the body psychotherapist usually begins by presenting novel and stimulating situations, activities, or *appropriate challenges* (breath, pound pillows, do this yoga exercise, feel the energy, tell me your dreams, early memories, traumas etc.) to the client that evoke novel experiences and sensations. These novel and arousing sensations stimulate neural activity, gene expression, and the desire to learn more that -sets the client forth on deeply motivating outer and inner journeys of self-discovery, transformation, and self-creation.

It is now known that any intense psychological state of arousal - such as trauma, pain, stress, novelty, dreaming (REM sleep), and creative moments in everyday life, as well as all the arts and sciences, can initiate the expression of *Immediate Early Genes*, *Activity (or Experience) Dependent Genes,* and *Behavioral State-Related Genes* in our brain and body. The molecular biologists Bentivoglio & Grassi-Zucconi (1999), for example, ask questions about immediate-early genes (IEGs) that are of fundamental importance for the body psychotherapist whose *appropriate challenges may evoke such activity on the genomic level in their clients*.

> *The study of IEGs indicates that sleep and wake, as well as synchronized and desynchronized sleep [REM or dream sleep], are characterized by different genomic expressions, the level of IEGs being high during wake and low during sleep. Such fluctuation of gene expression is not ubiquitous but occurs in certain cell populations in the brain. . . IEG induction [within minutes] may reveal the activation of neural networks in different behavioral states.* Although stimulating, these findings leave unanswered a number of questions. *Do the areas in which IEGs oscillate during sleep and wake sub serve specific roles in the regulation of these physiological states and in a general 'resetting' of behavioral states?* Is gene induction a clue to understanding the alternation of sleep and wake, and REM and non-REM sleep? . . . Could behavioral state-related IEG induction underlie, at least in part, learning mechanisms? The oscillation of IEGs effects the expression of target genes, and thus brings about other questions: May the transcriptional cascade explain the biological need and the significance of sleep? *Does this explain the molecular and cellular correlates of arousal, alertness, and, more in general, of consciousness?* (p. 249, italics added)

Whitney et al. (2003) recently documented how individuality and variation in gene expression patterns in human blood throughout the day and night can be assessed with DNA microarray (gene chip) technology to investigate these questions about varying states of consciousness.

> The extent, nature, and sources of variation in gene expression among healthy individuals are a fundamental, yet largely unexplored, aspect of human biology. *Future investigations of human gene expression programs associated with disease, and their potential application to the detection and diagnosis, will depend upon an*

understanding of normal variation within and between individuals, over time, and with age, gender, and other aspects of the human condition. (p.1896, italics added)

This means that DNA microarrays could be used as a sensitive and scientific measure of behavioral arousal, consciousness and varying psychological states, as well as brain plasticity in body psychotherapy.

Stage Two: Incubation, Arousal, Conflict, Negative Experiences and/or Symptoms.

Often this second stage is characterized by a mild state of anxiety, fear, confusion, stress and even psychosomatic symptoms as the client responds to the body psychotherapist's initial suggestions for behavioral and mental activity. Emotional conflicts, tears, anger, depression, aggression and symptoms experienced in this stage are mind-body language about unresolved issues at an unconscious, genomic level that require review, replay, re-synthesis and therapeutic reframing on the conscious level. The client needs to experience his or her self from different activity perspectives to learn about their maladaptive response patterns on deep genomic levels. Clients manifest their outer, observable or *phenotypic* mind-body response patterns of emotional arousal when their inner, unconscious *genotype* or *genomic* profiles are evoked during this stage of arousal. It is during this second stage of the creative process of body psychotherapy that we expect DNA microarray technology will reveal each client's unique gene expression profile in response to the appropriate therapeutic challenges presented in stage one.

Many experienced body psychotherapists have noted how many clients experience a spontaneous, quiet period of private inner work and reflection after a crisis of abreacting negative emotions and conflicts that is illustrated at the peak of the creative process in Figure 3.

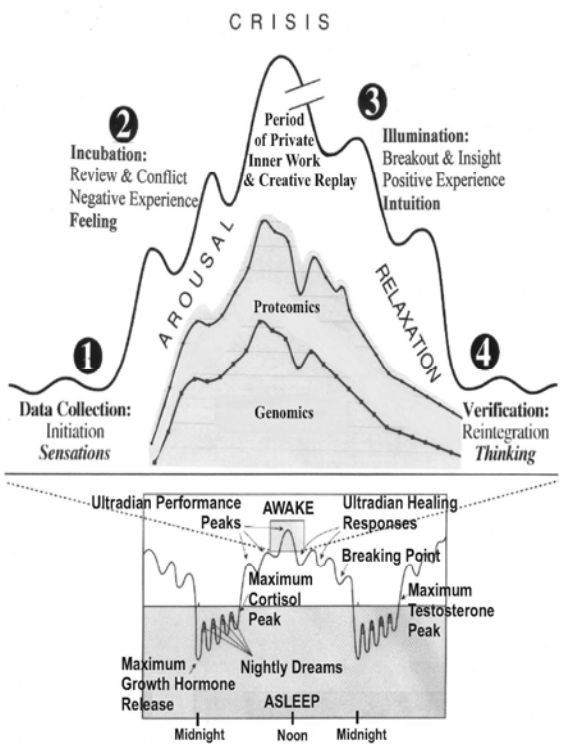


Figure 3: The genomic science foundation of body psychotherapy. The lower diagram summarizes the normal circadian (~ 24 hours) profile of alternating 90–120 minute ultradian (less than 20 hours) rhythms of waking and sleeping characteristic of Kleitman's Basic Rest-Activity Cycle (BRAC) for an entire day in a simplified manner. The ascending peaks of rapid eye movement (REM) sleep typical of nightly dreams every 90-120 minutes or so are illustrated along with the more variable ultradian rhythms of activity, adaptation, and rest in the daytime. This lower figure also illustrates how many hormonal messenger molecules of the endocrine system such, as *growth hormone*, the activating and stress hormone *cortisol* and the sexual hormone *testosterone,* has typical circadian peaks at different times of the 24-hour cycle.

The upper diagram outlines body psychotherapy as the creative utilization of one natural 90–120 minute ultradian rhythm of arousal and relaxation, which is illustrated here as the classical four stages of the creative process: 1) Data collection; 2) Incubation; 3) Illumination; 4) Verification. Body psychotherapy interacts with the proteomics (protein) level illustrated by the middle curve depicting the energy landscape for protein folding into the correct structures needed for physiological functioning (adapted and redrawn from Cheung et al. 2004). This proteomic level is, in turn, emergent from the genomics level illustrated by the curve below it (Adapted from Levsky, et al., 2002). This genomics curve represents the actual gene expression profiles of the immediate-early gene *c-fos* and 10 other genes (alleles) over the typical ultradian time period of 90-120 minutes. All genes showed measurable activation within 5 or 10 minutes. By 40 minutes a peak of activation

was reached and by 90-120 minutes gene expression had returned to the baseline. Note how these are all typical time frames for activity oriented body psychotherapy.

The lower diagram in Figure 3 illustrates the normal activity profile for one day that was originally described by Kleitman (1969; Kleitman & Rossi, 1992) as the Basic Rest-Activity Cycle (BRAC). Since this basic rest-activity cycle is evident on all levels from mind to gene, I have proposed that it is natural foundation of body psychotherapy. The daily or circadian (~ 24 hours) profile is made up of alternating 90–120 minute ultradian (less than 20 hours) rhythms of waking and rest, sleeping and dreaming. The ascending peaks of rapid eye movement (REM) sleep typical of nightly dreams every 90–120 minutes or so are illustrated along with the more variable ultradian rhythms of activity, adaptation, and rest in the daytime. This lower part of Figure 3 also illustrates how many hormonal messenger molecules of the endocrine system, such as *growth hormone*, the activating and stress hormone *cortisol* and the sexual hormone *testosterone,* -have typical circadian peaks at different times of the 24-hour cycle.

The upper part of Figure 3 outlines the basic psychobiological unit of body psychotherapy as the creative utilization of one natural 90–120 minute ultradian rhythm of arousal and relaxation illustrated in the lower diagram. The classical four stages of the creative process: 1) Data collection; 2) Incubation; 3) Illumination; 4) Verification have been well documented by Wallas (1926) and others. The four basic psychological functions of sensations, feeling, intuition, and thinking as originally described by Carl Jung appear to be related to the 4 stages of the creative process (Rossi, 1972/2000, 2002, 2004). The BRAC of 90-120 minutes at the genomic and proteomic levels is included in the top portion of Figure 3 to illustrate our basic genomic science foundation of body psychotherapy. The interaction between environmental stimuli and profiles of gene expression is the ultimate foundation of the classical 4-stage creative process in body psychotherapy.

I originally used this "break" after the peak crisis in Figure 3 to indicate the unknown process by which the *arousal* of stages 1 and 2 was shifted to the relaxation of stages 3 and 4 of the creative process. I now hypothesize that this break is mediated by alternative gene splicing at this critical transition stage of the creative process leading to a dominance of the acetyl cholinesterase gene AChE-R (Relaxation) over AChE-S (Stimulation) that is summarized by Sternfeld et al. (2000).

"Our current findings therefore demonstrate that *AChE-R, most likely with another modulator or modulators, may be beneficial in the response to acute stress at two levels: (i) by dampening the acute cholinergic hyperactivation that accompanies stress and (ii) by protecting the brain from entering a downward spiral into progressive neurodegeneration through an as-yet unidentified mechanism, which could involve non-catalytic activities and/or direct competition with AChE-S"* (p. 8652).

We now need more direct tests of this hypothesis about a basic genomic dynamic of body psychotherapy by assessing the DNA microarray profiles of gene expression between *AChE-S* (Stimulation and arousal more present in stages 1 and 2 of the creative cycle) and *AChE-R* (Relaxation more evident in stages 3 and 4 of the creative cycle).

Stage Three: Illumination, Breakout, Insight, Positive Experience.

This is the very rewarding creative moment experienced in all the arts and sciences as well as body psychotherapy. *I propose that such creative moments at this positive stage of body psychotherapy are the outer manifestation of gene expression, new protein synthesis and brain plasticity.* It is of essence that people learn how to recognize and support these new developments in their body experience and consciousness. The main job of the body psychotherapist at this stage is to help clients recognize and appreciate the value of their new experiences and insights. Often a person's conflicts and dysfunctions seem to disappear dramatically as personal problems are resolved with the new joyful and spiritual perspectives and feeling that are expressed at this stage of body psychotherapy.

It is now known, for example, that when experimental animals experience *novelty, environmental enrichment and physical exercise* the *zif-268 gene* is expressed during their REM dream sleep. *Zif-268* is an *immediate-early gene* (IEG) and *behavioral-state related gene* that is associated with the generation of proteins and growth factors that facilitate synaptogenesis and neurogenesis - brain plasticity (growth). Ribeiro et al. (2004) summarize their research on noveltyinduced expression of the zif-268 gene (also known as neural growth factor) as follows.

> The discovery of *experience-dependent brain reactivation* during both slow-wave (SW) and rapid eye-movement (REM) sleep led to the notion that *the consolidation of recently acquired memory traces requires neural replay during sleep*. . . *experience-dependent neuronal reverberation* is a general property of multiple forebrain structures. It does not consist of an exact replay of previous activity, but instead it defines a mild and consistent bias towards salient neural ensemble firing patterns. These results are compatible with a slow

> and progressive process of memory consolidation, *reflecting novelty-related neuronal ensemble relationships* that seem to be context- rather than stimulus-specific. Based on our current and previous results, we propose that the two major phases of sleep play distinct and complementary roles in memory consolidation: pretranscriptional recall during SW sleep and transcriptional storage during REM sleep. (pp. 126, italics added)

I have proposed how the novel, creative replay of *"recently acquired memory traces"* of stress and trauma are the basic genomic science mechanism of healing in all forms of psychotherapy as well as sleep. From a historical perspective, Rudolph Otto (1923/1950) introduced the concept of the *numinosum*, as a state of heightened psychobiological arousal of *fascination, mystery, and tremendousness*, to describe the emotional arousal that is characteristic of spiritual experiences of naturalistic healing. The creative replay of the *novelty-numinosum-neurogenesis effect* in the arousing activities of body psychotherapy could be understood as an update of James Braid's historical concept of "The Physiology of Fascination" in the genomic science foundation of therapeutic hypnosis as well as mind-body healing via cultural and spiritual rituals (Rossi, 1972/2000, 2002, 2004).

Stage Four: Validation, Verification and Healing.

In this final stage of the creative cycle, the client must verify the value of the new experiences of stage three by practicing them in the real world. These new experiences and realizations are often fragile and can be easily lost. It is ironic that the client's family and friends, who wish them well, often do not recognize the value of the new, and support it as it develops within the client. Thus adolescents naturally have difficulties with their family and friends. Falling in love can be fragile and fickle. Innovators and creative workers have been perpetually misunderstood and persecuted throughout history for daring to assert their new consciousness. The body psychotherapist and the client now work and plan together to discover new and practical changes in lifestyle that need to be explored and tested in the real world.

We expect that the states of relaxation and well being that emerge naturally during this final stage of body psychotherapy, as assessed by DNA microarrays, will be different than those in the first 3 stages. Psychosocial stress, for example, can turn off the early activated interleukin-2 gene so that the immune system cannot communicate well at the molecular level and we are more vulnerable to all sorts of opportunistic infections (Kiecolt-Glaser et al., 2001). Positive psychosocial experiences with children, on the other hand, can turn on the interleukin-2 gene within an hour or two to facilitate molecular communication, healing, and health (Castes et al., 1999). *Late activated genes*, by contrast, require as much as 4 to 8 hours to achieve their peak levels of expression (Table 1). The turning on and off of cascades of gene expression begins within a few minutes of receiving important psychological and social signals and may continue for hours, days, weeks - or even a lifetime.

The new life patterns now evident at all levels from mind and behavior to gene expression, as assessed by DNA microarrays, could document the value of body psychotherapy. All practicing body psychotherapists should consider how they could facilitate such explorations into the genomic science foundations of their daily work by networking with research teams that can assess gene expression before, during, and after their therapeutic sessions.

Summary

The basic theme of this paper is that all schools of body psychotherapy achieve their structural, integrative, energetic, and functional therapeutic effects by accessing and facilitating the natural molecular dynamics of gene expression, protein synthesis, brain, and body plasticity. DNA microarrays are an emerging scientific methodology that could be used for defining the common denominator and the distinguishing dynamics claimed by the various schools of body psychotherapy. DNA microarrays are a potentially fundamental scientific approach, at the most basic molecular level of the body, for analyzing and resolving the controversies between different schools of body psychotherapy. The genomic science foundation of body psychotherapy needs to be documented with DNA microarrays to explore its possibilities and limitations in facilitating human development, health and transformations via the 4-stage creative process.

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Biography

Ernest Rossi, Ph.D. is a Diplomate in Clinical Psychology and the recipient of the Lifetime Achievement Award For Outstanding Contributions to the Field of Psychotherapy by the Milton H. Erickson Foundation in 1980 and the American Association of Psychotherapy in 2003. He is a Jungian Analyst, the Science Editor of *Psychological Perspectives* and the author, co-author and editor of 23 professional books and 140 papers in the areas of psychotherapy, dreams, mind-body healing, and therapeutic hypnosis. Dr. Rossi is internationally recognized as a polymath and teacher of innovative approaches to facilitating the creative process. The mission of the non-profit Ernest Lawrence Rossi Foundation is to facilitate research in psychosocial and cultural genomics research as the foundation of all the psychotherapies.

Integrating Pre and Perinatal Psychology and Body Oriented Psychotherapy

Marjorie L.. Rand, Ph.D.
with Christine Caldwell, Ph.D.

Abstract

A natural affinity exists between the fields of birth psychology and somatic psychology. Their basic tenets, many of their assessment tools, and quite a few of their clinical techniques are strikingly similar. In many cases, a difference of degree rather than kind is operating. Both these fields seem to recognize elemental features of human experience not included in currently dominant paradigms of psychotherapy, and seek to both extend and reorient them. This article begins the process of identifying some of the bridges that naturally occur between these two fields. A comparison of Emerson's birth stages and Rosenberg's Reichian segments demonstrates how birth issues can be recognized and worked with in the context of somatic psychotherapy.

Keywords

Birth Psychology – Integrating pre and perinatal psychology – Reichian – Somatic Psychology

INTRODUCTION

By Christine Caldwell, Ph.D.

A natural affinity exists between the fields of birth psychology and somatic psychology. Though both these fields developed relatively independently, holding only a few of their pioneers and extenders in common, their basic tenets, many of their assessment tools, and quite a few of their clinical techniques are strikingly similar. In many cases, a difference of degree rather than kind is operating. Both these fields seem to recognize elemental features of human experience not included in currently dominant paradigms of psychotherapy, and seek to both extend and reorient them. This introduction begins the process of identifying some of the bridges that naturally occur between these two fields, and suggests ways in which they might coalesce, so that each is nourished and supported.

Four main bridges span these two fields. The first deals with a domain they both address. Put in neurological terms, both fields are interested in human experiences that exist largely outside the neocortical and speech centers of the brain. Prenatal and Perinatal psychologists do so because they are interested in the effect of events that occurred before these brain centers were fully formed. Somatic psychologists do so because their body-centered perspective acknowledges that experiences are routed first through limbic, mid and lower brain centers, resulting in attitudes, orientations, and even behaviors that are well underway before they ever arrive at the neocortex and therefore conscious awareness. Both fields, coming from their own vantage points, eloquently echo current neurological findings that locate significant portions of psychotherapy outside the box of cognitive insight and understanding (Schore, 1994). This results in an extension of the whole field of healing into realms previously thought to be irrelevant, inaccessible or intractable.

The second bridge uniting these two fields has to do with the body-mind orientation of both. Basic theory building in either field begins with an assumption that soma and psyche are one, and that the physical body and the emotional, cognitive, transpersonal, and spiritual bodies all exist as a web. What happens to one happens to all. Therapy, then, must blend together an understanding of this fact such that a physical symptom, an emotional symptom, and a cognitive symptom can all be expressions of the same historical injury, and can be healed through encompassing techniques.

Third, assessment often bridges the two disciplines. Both tend to assess clients through largely behavioral means, looking at movement, gesture, posture, energy, relational dynamics, physical complaints, and emotional patterns to diagnose and treat. Both fields are fascinated by what a client is doing just as much or maybe even more than what they are thinking.

Last, both fields are highly experiential in their treatment forms. Therapy consists, in many cases, of experiences that are engaged in during the therapy hour, and then applied to daily life. Techniques such as conscious breathing, expressive movement, relaxation practices, bodywork, emotional release, and creative processes form the backbone of both disciplines. It is unfortunate that these two fields haven't crossed over these bridges to interact more often. Many practitioners are beginning to do so. The next sections of this article suggest ways in which they might do so even more.

Potential Contributions of Birth Psychology to Somatic Psychology

Because of its focus on very early life events, Prenatal and Perinatal Psychology extend our psychologically significant lifespan to the cellular level (Chamberlain, 1988). For Somatic psychologists this extension makes a great deal of sense. If we hold all body events as psychologically significant, then both gametes (sex cells) and somatic cells have been affected by experiences that influence organismic development, orientation, and behavior. Yet many somatic psychologists have largely overlooked this view. Many of Somatic Psychology's pioneers were trained psychologists, and may bear the effects of Freud retracting and minimizing his views of birth trauma, while many of Birth Psychology's pioneers came more directly from the field of medicine, which addressed prenatal and perinatal care.

In Prenatal and Perinatal Psychology, the primitive, rapid, global, and enduring form of learning called imprinting has been well explicated and well addressed (Chamberlain 1998, Verny,1981). Imprinting fades as a learning style as the neocortex comes on line, but remains accessible throughout our lifespan, triggered by such strong events as sudden, traumatic, and life-threatening events. Much of what we see in adults as trauma and shock responses trace their origins to imprinting mechanisms in the brain and elsewhere in the body (Dudai, Y. 2002). Somatic Psychology has recently been praised for its work with trauma and shock, yet has not often made the connection to imprinting, and therefore has in some cases neglected to see the possibility that adult trauma patterns may reflect a reoccurrence of very early learning, extending back to intrauterine life (Chamberlain, 1993, 1998). By appreciating and including this possibility, somatic practitioners can get to the root of dysfunctional responses. By adding an awareness of and appreciation for gestational as well as birth and postnatal imprints, somatic psychologists can reach the earliest somatic experiences thereby increasing its effectiveness. Somatic psychotherapists can also treat even younger clients, using many of the techniques they already possess. Somatic Psychology practitioners may also benefit from learning new techniques for treatment that have been developed for pregnant women, gestating fetuses, neonates, infants, and young children. Some of these techniques may include touch, birth reenactments, the use of music and other art forms, hypnotherapy, and warm water practices.

Contributions of Somatic Psychology to Birth Psychology

Somatic Psychology has been influenced either directly or indirectly by occupational and physical therapy as well as dance therapy and Sensory Integration. Because of this influence it possesses a finely developed understanding of developmental movement sequencing, and the developmental delays that occur when movement tasks are thwarted by trauma or neglect. Developmental delays correlate to psychological disturbances as well as learning and memory disorders. Birth psychology practitioners may benefit from this understanding, since they often focus on the emotional sequelae to trauma and may inadvertently minimize the physical repatterning that the body craves. Because of the movement emphasis of many somatic psychologists, this field carries with it many movement assessment tools that can readily be applied to research and assessment with neonates and infants. Movement analysis forms such as Body-Mind Centering (in text Aposhyan, 12999, Hartley, 1995), Laban Movement Analysis (in text Payne, 1992), the Kestenberg Movement Profile (in text Bernstein, L. 1984), and the Bartenieff Movement Fundamentals (in text, Bernstein, L. 1975) can all be applied to infants, and many of their trained analysts understand the correlation of movement behavior to personality and intrapsychic dynamics. These methods go beyond the capabilities of video analysis because they speak to the biological and developmental needs that movement behavior shapes itself to. When the psyche is disturbed, so is movement.

By looking rigorously at movement behavior we can assess pre and post treatment issues, and test for observable outcomes. Somatic psychologists are in increasing numbers licensed in some form of mental health counseling or psychotherapy, and the field is increasingly aligning itself with most forms of mainstream as well as alternative healing. This training ethically enables a therapist to deal with more highly disturbed clients, as well as guarantees at least some training in family systems, assessment, group dynamics, research, multicultural counseling, diversity issues, and
professional ethics. It includes training in verbal therapy techniques, enabling practitioners to blend verbal and non-verbal states, thus increasing overall integration. It also guarantees clinical internships and internship supervision.

Ways Both Fields Can Go Forward Together

Both fields can benefit from the trend towards increasing professional training and standards. If we call what we do psychotherapy, or even counseling, and if we believe that we positively influence the psyche, it can only benefit us to train rigorously, in formats that can cull out unethical or incompetent practitioners. Somatic

psychologists can now train at several accredited universities that enable graduates to apply for state board licenses as psychotherapists or counselors. Prenatal and Perinatal psychologists can also get advanced degrees in their field. The two fields may also want to consider joint projects in training, research, publication, and marketing. By dialoguing with each other in both official as well as informal ways, our two fields can enrich and extend each other.

THE BIRTH STAGES

By Marjorie L. Rand, Ph.D.

There are several schools of birth therapy. Among them is Stan Groff's method, which employs breathing techniques to access birth material and tends to emphasize the transpersonal aspects. Another is Leonard Orr's technique of "rebirthing" which often uses hot tubs to evoke birth states. Lisbeth Marcher's Bodynamic therapy uses its understanding of somatic development to coincide with psychological development in pre, peri and post natal issues. The work of Frank Lake in England developed theories relevant to the nature of the baby's reaction to stress in the birth situation. Dr. William Emerson is one of the pioneers in the field of Pre and Perinatal Psychology along with Thomas Verny, David Chamberlain and others. His work, called Birth Re-facilitation, was influenced by the work of Lake. Emerson categorized the fetal stages of birth upon which this paper will focus. These stages were first formulated in the late 1980's [1]. They are presented from the fetal perspective and not from the usual obstetrical viewpoint, which focuses on the mother. Of course the bodies of the mother and the fetus are interacting at all times during the birth. But it is important that we explore the process of birth from the baby's perspective and not from the doctor or midwife's point of reference.

Since birth is one of the most powerfully physical experiences in life it must be accessed through the body. This section will examine the basic physical shaping process of the body during its movement through the birth canal and will detail the positional and movement changes and variations in pressure which the baby experiences. It is the intention of this paper to show how these stages fit into the Reichian theory of the segments and how this can be used to deal with pre and perinatal material during a somatic psychotherapy session.

BIRTH STAGE ONE: DESCENT

Birth stage one is called descent and as the baby enters the birth canal, its head must rest against the mother's spine with one side on the lumbar sacral promontory (the lie side) and the other side against her pubic symphysis. This causes lateral pressure on the fetal cranium at certain conjunct points; the temple area on the lie side and the jaw area on the non-lie side. If there is trauma or stuckness (cessation of descending movement), there will be lesions on the conjunct points, and lateral compression of the fetal cranium. The psychological correlations of trauma in this stage include life positions such as: "can't go forward, can't go back", "no exit", and "double bind".

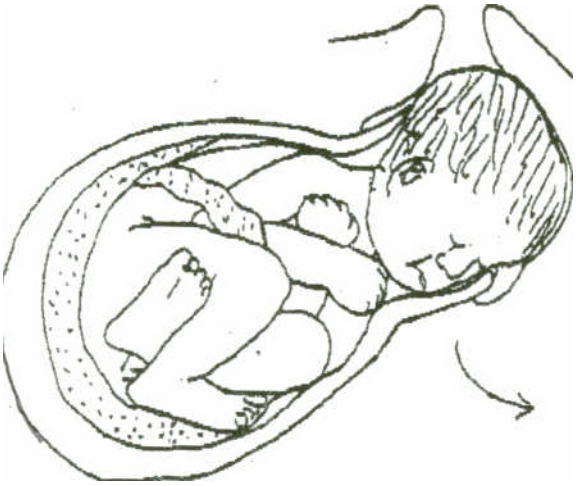
Figure 1 – Birth Stage 1

[1] I learned this information in training groups with Dr. Emerson for eight years and in my own practice with adults and infants. Although this information remains unpublished, his papers and videos can be obtained from Dr. Emerson at 707-7637024 or e-mail: wemerson@home.com. Further information is available through the Journal of Pre and Perinatal Psychology (PO Box 1398 Forestville, CA95436) or through the American Association of Pre and Perinatal Psychology and Health at: apppah.aol.com or www.birthpsychology.com

BIRTH STAGE TWO: ROTATIONAL DESCENT

Birth sage two is called rotation. Because the pelvic inlet is an oval on a horizontal plane, like an egg on its side, the fetal cranium must enter the birth canal sideways. The pelvic outlet however, is an oval on a vertical plane, so the fetal cranium, but not the body, must rotate in the birth canal in order to navigate through it. If there is delay during the rotation stage, there will be compression in a spiral pattern on both the front and back sides of the fetal cranium, since the fetus is also still descending. Stage two is the most common stage where trauma occurs and the most dangerous (Emerson). It is difficult to navigate, and there may be complications if the umbilical cord is involved. If the birth canal is too narrow, trauma to the neck, chest and shoulders may occur. Some of the psychological correlates of trauma in this stage are issues of transition, changing over, turning the corner, and longing for direction but resistance to it.

Figure 2 – Birth Stage 2



BIRTH STAGE THREE: ANTERIOR-POSTERIOR DESCENT

Birth stage three has two stages, flexion and extension. After rotation, the fetal head must bend forward (flexion) with its face against the maternal sacrum in order to fit under the mother's pubic bone. Next the fetal head must bend upward (extension). If the cervix is fully dilated, it is in stage three extension that crowning will occur. Crowning is when the top of the fetal cranium can be seen through the opening of the cervix. There will be anterior/posterior compression of the fetal cranium if this stage lasts too long. The psychological life positions if there is trauma in this stage can be issues of productivity, difficulty sustaining effort and penetrating to the depth of the task.

Figure 3 – Birth Stage 3A

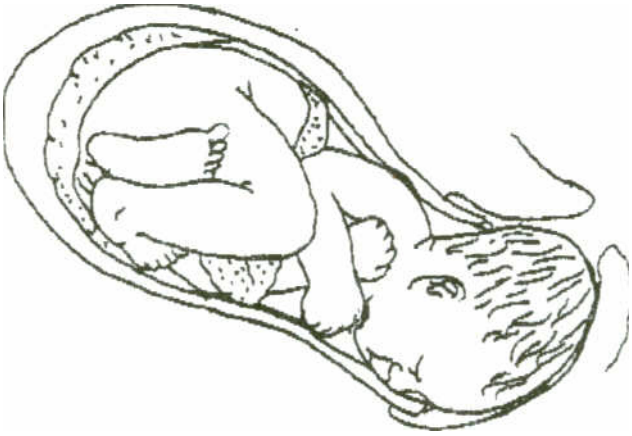


Figure 4 – Birth Stage 3B

BIRTH STAGE FOUR:
HEAD RESTITUTION, BODY BIRTH AND BONDING

Birth stage four is the delivery of the head, shoulders and body. The fetal cranium has to turn back to its lie side and be in alignment with the fetal body in order to deliver the shoulders. Trauma to the neck, clavicle and shoulders as well as the pelvis can occur in this stage if complications arise.

Optimal bonding also occurs in stage four (Rand,1996). Because of the hormone oxytocin, the infant should be placed in the mother's arms prior to the cord being cut, and allowed to suckle. Some possible psychological attitudes and belief systems that could arise from trauma in this stage are: "I am not welcome", "the world is a cold place" "there is something wrong with me", "life is dangerous" "life is hard" "I have caused my mother pain and must spend my life attempting to make up for it". It is possible to "read" the body of a newborn and even that of an adult, to diagnose birth trauma if the therapist can recognize these patterns. Of course, there are other patterns as well, such as breech and caesarian section, and which create completely different patterns, which will not be discussed in this paper.

Figure 5 – Birth Stage 4

THE REICHIAN SEGMENTS

Wilhelm Reich is considered the father of Body Psychotherapy. He was a disciple of Freud whose views about the body and energy were considered revolutionary. Reich knew that energy traveled vertically through the body. This is similar to the meridians in acupuncture, although we have no way of knowing if Reich was exposed to Chinese medicine. Similarly, Reichian segmental theory also parallels the Chakra system of Hindu spiritual practice. Chakra is Sanskrit for wheel or energy center. We also do not know whether Reich knew about the Chakra system.

Reich called blockages to the flow of energy caused by muscular contraction armoring. This muscular armoring runs horizontally across the body front and back (Reich 1973). Hence, the human body becomes segmented like a worm. This section will concentrate on the segments of the body, and how they can be used to diagnose birth trauma. Rosenberg and Rand (1985) have adequately described the Reichian segments. What is new here is their connection to pre and perinatal material and how to work with these issues.

OCULAR

The first segment is called the ocular segment and encompasses the top and back of the head including the forehead and eyes. The function of this segment is presence and contact. Reich believed it was necessary for the therapist to face the client and to be in contact with him/her. This is especially important when birth trauma issues arise as contact with the therapist can replicate and correct the bonding experience with the mother in stage four. When a person is not present and grounded in his/her body, it can be seen in the eyes, which may look fixed, empty, or glazed over. The ocular segment needs to be open in order to make contact, so the ocular segment is usually attended to first in a therapy session. If a person suffered conception trauma, or was not wanted or survived an abortion attempt, he/she may have likely chosen not to be present in his/her life and be dissociated from his/her body. Consequently a lack of presence shown in the eyes can be indicative of this kind of trauma. If anesthesia was used during the birth process, the fetus may have been unconscious and thus not present for the birth process. This will often show up in an ocular block. Pressure on the top and sides of the head and the forehead as well may indicate stage one trauma. The ocular segment is also related to the feet and the function of grounding. Energy must connect from the head to the feet. When the feet and legs are not connected to the rest of the body, it may reveal that the legs could not push during the birth process due to anesthesia or other trauma. Light to moderate pressure on the frontalis, temporalis and occipitalis muscles may elicit birth issues. Having a client lie on the floor with his feet on a wall (at a ninety degree angle) with the therapist placing a pillow on the crown of the head and applying resistance may activate the legs and the feet by pushing with head and feet, and thus replicate stage one descent.

ORAL

The next Reichian segment is the oral segment, which contains the lower portion of the face (mouth, jaw). While these structures are certainly used for expression, they are also used for retention, e.g. taking in food, or inhibiting expression. They are essential for survival. A baby born without a strong sucking reflex formed in utero may not have survived in former times. It is also essential to optimal bonding that the mouth tongue and throat of the newborn be functioning well. Armoring in theses areas could indicate stage one, two or three trauma. The jaw might indicate trauma to the conjunct point on the non-lie side during stage one. While everyone's face is asymmetrical in some way, when the top half and lower half of the face do not match each other it is often indicative of stage two rotational trauma. Release techniques for the oral segment include among others, sucking, making sound and biting. The rooting reflex, which involves turning the head leading with the mouth, may have to be re-patterned as a stage two rotational pattern.

CERVICAL

The cervical segment consists of the neck in the back and the throat in the front. The throat is functionally connected to the oral segment as well. The cervical segment is strategically located connecting the head to the rest of the body. Because of this it is extremely important. The cervical segment is reciprocally related to the pelvic segment, since both ends of the spine reside in these segments. The digestive tract also begins and ends in these segments. The throat is important in the function of swallowing and making sound. It can also serve the function of expression. Many fragile glands, arteries and structures are located in the throat. While the neck is heavily muscled and can be worked with in a deep manner, the throat must be approached delicately. Sound is the least invasive way to release the throat. Movement and stretching of the neck are good release techniques. There can be throat and neck compression trauma in all birth stages, and these will also show up as blockages in the cervical segment. When the umbilical cord is wrapped around the neck at any stage it will be shown in the cervical segment as a blockage.

THORACIC

The thoracic segment, which includes the chest, upper back, shoulders, arms and hands, is also vulnerable to compression trauma. Certainly the vital organs and glands found in this segment are of existential importance. The heart and lungs must function at birth or the baby may not survive. The chest is compressed during stage two, but will expand in stage four since the bones of the fetus are malleable. However, if the baby spends prolonged time in the birth canal, it is possible for the chest to remain contracted, thus foreshadowing breathing disorders. Since many somatic psychotherapy modalities use breathing as a primary tool, blockages in the thoracic segment can often be traced to pre and perinatal issues. The shoulders, arms and hands can be traumatized during stage four due to awkward positioning or shoulder trauma during delivery. So blockages in these areas may also be considered as arising from antecedent early injuries, perhaps involving birth. Prematurity is another trauma which affects the functioning of this segment, since the structures and organs may not be fully developed. During birth re-patterning sessions clients often experience a breathing release after successfully renegotiating the birth process through movement. They usually experience freer and deeper breathing and a feeling of expanded aliveness, often for the first time in their lives. Some release techniques for the thoracic segment include raising the arms over the head and to the side to open the chest and release the shoulders, depressing the chest and working on the intercostal muscles of the ribs to facilitate movement.

DIAPHRAGMATIC

The diaphragmatic segment is also crucial to breathing and is sometimes thought of as the lower chest. The diaphragm is often contracted to control anxiety and other unwanted feelings. Thus a chronic pattern of holding the breath can occur. The diaphragm is one of the most important muscles in our bodies. Without proper functioning of the diaphragm, the heart and lungs as well as the digestive system will be affected. The diaphragm separates the top and lower halves of the body both structurally and functionally. During inhalation, the diaphragm drops and thereby allows the lungs, which are not muscles, but merely air sacs, to expand. Upon descent it also massages the intestines and organs below it, so the proper functioning of the digestive system is dependent on the movement the diaphragm. If the diaphragm does not move well, oxygen delivery to the body will be affected. The fetal diaphragm and lungs are already developed in utero, and the fetus is practicing breathing in order to be

able to breathe at birth. If there is compression trauma during birth stage four, the action of the diaphragm may be limited. In somatic psychotherapy it is important to open the diaphragmatic segment to facilitate breathing. This can be done by pressing on the rib cage forward and down, working on the intercostal muscles of the ribs, and approaching the diaphragm directly under the ribs where it attaches in the front. Any re-patterning or movement which increases breathing, can bring up existential issues, since breathing is so essential to birth and life.

ABDOMINAL

The abdominal and pelvic segments are not structurally separate, but they differ functionally. The abdominal segment consists of all the organs and muscles under the diaphragm, mostly having to do with the function of digestion. In this way the abdominal segment is connected to the oral segment. Symptoms having to do with digestion can reveal very early oral bonding issues (Rosenberg, 1985). As Fritz Perls states in his theory of dental aggression (1969), both emotional and physical food must be digested and assimilated by the organism in order to become part of it. Various release techniques include kneading the rectus abdominus and massaging the large intestine. However, in terms of pre and perinatal issues, what is of most importance in this segment is the navel. The umbilical cord is our lifeline for nine months. It is where we take in nutrition and where we eliminate waste. In a way, it is our first mouth and breathing organ. All manner of physical and emotional material is taken in through the umbilicus in utero, including hormones, neuropeptides and chemicals. It may be in this way that the fetus is exposed to what the mother experiences regardless whether these experiences are positive or negative. This center can be blocked against negative input, and yet once the cord is cut, it is usually neglected for the rest of one's life. If it is cut prematurely, before it stops beating, the negative energy may be experienced as invasive and can cause trauma and blockage. Negative umbilical affect (Emerson) can be worked with in a somatic psychotherapy session by releasing the navel energy center front and back, either by touch or energetically. Experiencing the negative umbilical affect can help to release it psychologically.

PELVIC

The pelvic segment consists of the sexual organs, organs of elimination, and by extension, the legs and feet. So its function has to do with reproduction, elimination, movement and grounding. Since the pelvic segment is the end point of the digestive tract, it is also related to the oral segment. The pelvic segment should not be opened prematurely, since it can hold much trauma. The pelvis is intimately connected to prenatal and birth experiences; the uterus is our first universe. We emerge from the ovaries and the testes and travel down the fallopian tubes to connect to our new home in the uterus. It is through this connection that birth and conception trauma can influence attitudes toward sexuality. Experiences such as rape, incest, miscarriage and abortion can be held in the pelvis and transmitted to the fetus. Therefore, it is important to release the energy of these experiences. These are all physical experiences and cannot be resolved through talking alone. There are many ways to work with the pelvis, but it is preferable to work with noninvasive means. The least invasive method is awareness of holding patterns without necessarily confronting or removing them. Other methods may include gentle or stressful movements or postures of the pelvis, such the pelvic rock or the bridge. The most invasive methods would include touch of any kind, which should always be done judiciously when approaching the pelvis. A full description of these methods can be found in Body Self and Soul; Sustaining Integration (Rosenberg, et.al., 1985).

VIGNETTE

Colette had been a client for one and one half years. She had previously had two years of somatic psychotherapy several years before. She is a fifty five year old woman who returned to therapy for treatment of depression after the death of her husband. Her history was one of neglect and rejection by her mother. She was an unplanned and unwanted child who was conceived when her mother was in her forties. Her only sibling was a brother fourteen years her senior with whom she has no relationship. She remembers always feeling and being alone. She was delivered by emergency Cesarean section after a long and painful unsuccessful labor. During the delivery, the doctor cut her on her cheek with his scalpel from which she still has a scar. In this vignette, Colette accesses memories of experiences of her own Cesarean birth, as well as the removal of a fibroid tumor, a previous abortion, abandonment issues by her mother, her feelings about being a good mother, and the dissolution of her anger toward her mother.

In the following transcript Colette began the session by scanning her body and reporting her awareness. Spontaneous imagery emerged from body to mind, not mind to body. This imagery represented both her own stuckness in the birth canal and subsequent delivery by Cesarean section. When birth images emerge from a holding pattern in the pelvic segment, later traumas to the pelvis can also be released. In Colette's case the first memory was of a fibroid tumor being removed from her uterus which she compared to giving birth by Cesarean section. This lead to a memory of an abortion. Finally, the memory of the abortion allowed her to come to some acceptance of her relationship with her mother which allowed her to begin some inner healing. The therapist did not touch her during the session, although Colette was instructed to perform self-release techniques (such as massaging her belly). The depth and resolution of this session has to do with the therapist constantly referring Colette back to her body where the awareness arose.

T: What are you aware of in your body?

C: I feel a sensation in my abdomen

T: Can you describe it?

C: It is a dark space

T: Stay with the awareness and tell me what happens in your body

C: It seems like a room a large room and it's locked

T: Describe the body feeling of the room being locked

C: It feels so stuck. It's very tight there and it's growing

T: The space in your abdomen is like a large locked room and it's growing

C: Yes and now nothing is happening

T: Stuck and nothing happening

C: Oh my God!!

T: What are you aware of now?

C: I'm aware of a circle, a sphere

T: Where is that in your body?

C: It's hard for me to put my awareness there because I'm numb there from surgery. I had a large fibroid tumor
removed in 1990.

T: Put your hand on that area and massage it.

C: I gave birth in that surgery to a very large tumor and it was a cesarean

T: Keep massaging it.

C: I can always feel pain; you know that line between numbness and pain

T: Pain is feeling

C: Don't you think having a growth there has to do with old stuff?

T: It sounds like it could have a relationship to your own birth.

C: (Starts to cry)

T: What is happening?

C: I'm remembering the abortion I had that has never been processed. I feel guilt.

T: Where in your body do you feel that?

C: The pain isn't there anymore. I keep going to that spot inside my uterus where life began and life ended.

T: Stay with your awareness of that spot.

C: I could not have a child because of my fear that I would bring a child up the way I was brought up. I had the abortion after my mother had just died. I drove myself there by myself; I drove myself home by myself. I had no support.

T: When your mother died, you had to give up hope that your relationship with her would ever be healed.

C: Immediately my back went out. Crying out for support and attention, I was flat on my back for five weeks. So, I processed it in an aborted way (begins to laugh).

T: What is going on?

C: I'm remembering when my mother died and I had a vision in which she came to me and kissed me goodbye, and I never saw her again. She left. There was no way for her to help me when she was on the earth or when she departed.

T: What are you feeling?

C: I had no idea this stuff was still there. I'm not angry at all. I have to stop treating myself the way my mother treated me.

CONCLUSION

What we today consider "normal" obstetrical practices, deny the actual trauma of the birth experience, although midwife-attended and natural births do occur in hospitals today. Alice Miller tells us that this denial of the baby's experience allows these practices to continue without awareness of their possible consequences (1990). Since birth is first and foremost a somatic experience, it seems difficult to believe that practitioners could treat birth and prenatal trauma with out accessing the wisdom and intelligence of the body, which holds our experience from conception onward throughout life. It is time for somatic practitioners to be aware of these primary patterns which are imbedded in the body when the baby or fetus is nothing but body. If practitioners in the field of Pre and Perinatal Psychology were exposed to schools of Somatic Psychotherapy which are not yet known to them and taught some of their methodologies, the practice of working directly with the bodies of adults and babies would be enhanced. Somatic psychotherapists need to be apprised of and learn the importance of pre and perinatal periods of development. This would expand their knowledge and repertoire enabling them to work with earlier primary holding patterns and life belief systems.

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Biography

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Transference and Countertransference in Organismic Psychotherapy

Anna Maria Bononcini & Mauro Pini

Abstract

The article deals with the concepts of transference and countertransference as used in the field of Organismic Psychotherapy, focusing attention on the relationship between its theoretical model of reference and technical repertory. Organismic Psychotherapy, as conceptualized by Malcolm Brown, is characterized by systematic attention to everything occurring at the somatic level during the sessions: the therapist is trained to identify the relationship between what s/he experiences physically and what the patient expresses both verbally and non-verbally. Furthermore, the therapist must be capable of transforming his/her own psychic wounds into a vantage point for the observation of the client. This enables him/her to empathize with the client's wounds in a process that eventually leads the latter to self-actualization.

Keywords

Organismic - Transference - Countertransference - Malcolm Brown

> *If you want to find out anything from the theoretical physicists about the methods they use, I advise you to stick closely to one principle: don't listen to their words, fix your attention on their deeds. To him who is a discoverer in this field, the products of his imagination appear so necessary and natural that he regards them, and would like to have them regarded by others, not as a creation of thought but as given realities.*
>
> *Albert Einstein (1933)*

From organismic theory to its clinical practice: scenes from a difficult marriage.

One of the more controversial topics in Organismic Psychotherapy, a body-oriented approach introduced by the American psychologist Malcolm Brown (1979, 1990), concerns the status of its metapsychological constructs. The question of whether organismic concepts like "endoderm", "the closed cortico-spinal circuits", "the four being centres" or "the full embodied soul grounding" (Brown, 1990, pp. 312-315) are to be considered as metaphors, concrete psychophysiological processes or bodily events, constitute a still unresolved issue, one much debated within the Italian Society of Organismic Psychotherapy (SIPO).

In more general terms the question is a very old one, going back to when the philosopher Kant used the term the "thing-in-itself" to indicate the fundamentally unknowable nature of objects in the material world, opposing this concept to reality as it appears to the mind - the object as *phenomenon.*

The modern history of psychology, with its difficulty in establishing itself as an independent discipline, has been distinguished by the elaboration of divergent theoretical approaches to the understanding of human behavior and personality. These systems often show incompatible ideological orientations concerning the human being: it is the realm of psychological speculation, aimed at gaining knowledge of the ultimate determinants of the human condition, an area far beyond the experiential field of clinical data. Rather, the modern psychodynamic perspective tends to stress the influence of the subjective experience of the author on the theorization process behind meta-psychological models (Atwood & Stolorow, 1993; Carotenuto, 1998). Given this background, the age-old problem of the relationship between metapsychology and clinical practice is anything but resolved (Klein, 1976; Reppen, 1985; Fabozzi & Ortu, 1996; Goldberg, 2000).

In psychotherapeutic practice, as Reich affirmed in the first chapter of his major work Character Analysis (1933), the psychotherapist is faced every day with situations which often cannot be adequately dealt with by recourse either to the theoretical knowledge acquired during training or to clinical experience alone. The problem could be seen as one of how to establish the possibilities and limitations of the application of theory to clinical practice. For a psychodynamically oriented therapist, the time and place of the therapeutic enterprise are those shared with the patient in the bi-personal field provided by the setting (Gill, 1994; Carotenuto, 2003). On the other hand, if the therapist cannot rely on a comprehensive theoretical model, he/she will encounter insuperable difficulties of orientation within the complexity of the intrapsychic and interpersonal vicissitudes involved in treatment.

This is just as true in the case of Organismic Psychotherapy since its "paradoxical" theoretical guidelines, similar to those of Gestalt Therapy (Zerbetto, 1994), advise against the use of any theoretical reference point in the sessions, in order to concentrate exclusively on the *here-and-now* of the relationship. But in this case too, it must be emphasized, we are talking about an option regarding the *theory of technique* and not about simple adherence to an assumed "objective reality", or to use Kantian terminology, to the "thing-in-itself".

Even Jung (1910), while insisting that "theories in psychology are the very devil", recognized that the clinician in some measure needs such models, both for their heuristic value and as a guideline. The therapist is always armed with a series of theoretical reference points (Holt, 1989, 2003), however much his training may have discouraged him from taking too much interest in them, as in the organismic approach.

This leads us to ask what, in the last analysis, determines a cure or, if preferred, what stimulates the process of *self-actualization* as conceived by humanistic psychology. Is it the theory of reference, the knowledge of a repertory of techniques, or the relationship that the individual therapist is capable of establishing with the patient? And, since it does not seem reasonable to insist on making a choice among these - the school followed being simply the result of personal choice - what is the relationship between the personality of the therapist and the theoretical knowledge acquired during training, and in what way might this influence the therapeutic relationship?

The meeting between therapist and patient: from psychoanalysis to psychotherapies of a humanistic orientation.

More than any other discipline, psychoanalysis is concerned with the study of the relationship between therapist and patient. The terms transference and countertransference, coined by Sigmund Freud himself, represent the classical constructs that psychoanalysis uses to describe what happens in the bi-personal field of the setting. Despite the fact that the meanings attributed to these definitions have evolved constantly over the years in the psychoanalytic literature, they continued to be considered as two essential components of the terrain of contemporary analytic technique (Pine, 1998; Power, 2000). In recent times, transference and countertransference have tended to be redefined in terms of an all-embracing meaning, instead of in the narrower sense understood by classical psychoanalytic theory (Eagle, 2000a). In particular, the concept of transference has changed. Today it no longer defines the distortions and projections of the patient with regard to the analyst seen as a blank screen; rather it approaches the idea that the transference reactions of the patient are a response to plausible readings of signs that inevitably escape from the analyst. The underlying idea is that no one can truly function as a blank screen, including analysts: consequently the transference-countertransference interaction is considered a fundamental aspect of therapeutic action. (Eagle, 2000b; Jones, 2000). At the same time, countertransference is no longer seen as an obstacle to analysis but rather as an indispensable tool. As Carotenuto wrote (1986), it represents a kind of "Kant's dove" for the analytic enterprise.

The various body psychotherapies of a humanistic orientation, which include that of Malcolm Brown's organismic approach, have embraced some notions derived from the psychoanalytic theory of object relations. Yet, with the advent of humanistic and experiential forms of psychotherapy in the 1960s, therapists have tended to minimize the role of transference in treatment (Glickauf & Chance, 1998); consequently, the theme has received scant attention by the organismic, with some exceptions (see: Moselli, 1990; Downing, 1995).

Organismic Psychotherapy recognizes that the relationship with the caregiver is one of the primary needs of human beings. If such a need is unfulfilled in the child by a mother incapable of carrying out the functions of "holding" properly, it is regarded as being *the* cause of all subsequent problems. It can reasonably be claimed that the client-therapist relationship is not less important in the organismic approach than it is for the theorists of object relations (Mitchell, 1988; Smith, 2000). In Brown's thinking, the capacity of the therapist to feel empathy for the experiences of the patient is fundamental to the efficacy of the therapeutic act and an indispensable precondition for the application of whatever body-oriented methods are chosen (Brown, 1990).

Nevertheless, it is equally important that the problem seems to be elsewhere. Psychoanalysts, whether they adhere to drive theory, attachment theory, or Kohut's self psychology, possess a wide range of tools (concepts, precepts, speculations, instructions, the analysis of his/her own transference carried out previously, etc.) which give them access to a map which lays out, however crudely, the most difficult areas of the territory. The holistic-organismic tradition, however, from the historical contributions of Goldstein and Angyal, to the positions of Rogers, Maslow and Brown has not yet carried out a sufficiently systematic investigation of the therapeutic relationship.

Several authors agree that the analysis of transference and countertransference involves a wide range of techniques (Gill, 1982; Gorkin, 1987; Stolorow, & Atwood, 1989; Jones, 2000). Humanistic psychologists have always shown a certain reluctance to use the term "technique" because it suggests a kind of aseptic mode of approaching the patient that is thought to be inadequate and ineffective with respect to the aims of therapy, which are to encourage *self-actualization*. Precisely because of this methodological reluctance, Organismic Psychotherapy does not believe in dictating therapeutic protocols to be followed uncritically without taking into account the subjective positions of client or trainee. An aspiring organismic psychotherapist is trained to develop an approach founded on an awareness of his/her physical and mental experiences that would include the overcoming of the neurotic defense mechanisms, which inhibit *self-actualization*, thus obtaining an overall restructuring of the personality rather than the curing of any given symptom.

Transference and Countertransference in Organismic Psycho-therapy

> In order to examine the distinctive features of the organismic approach to the therapeutic relationship, we intend to keep to psychodynamic concepts as a means of comparison. More precisely, the terms transference and countertransference will be used in their widest sense, which does not refer exclusively to the more or less pathological factors arising from the client's or the therapist's past life. Transference refers to everything that happens to the client in his/her relations with the therapist, either at the conscious or at the unconscious level, whereas countertransference is the situation mirrored in the therapist (Carotenes, 1988).

The systematic attention given to bodily sensations, both of client and of therapist, is the element that differentiates organism psychotherapy as a therapy, from exclusively verbal psychotherapies. The therapist is expected to identify the relationship between his/her bodily experiences and what the client expresses both at a verbal and at a non-verbal level; the mental dimension is not therefore the only area of investigation of the relationship, but must necessarily be integrated with information coming from non-verbal behavior. The therapist, furthermore, puts trust in the "wisdom of the organism" of the client, that is, in his/her capacity for self-healing: the task of the therapist is to encourage an awakening by overcoming neurotic defense mechanisms.

This confidence guides organismic psychotherapists in their work and has consequences for their way of being within the therapeutic relationship. The attitude to take in the encounter with the client is one designed to accept, accompany, mirror and give back what happens in the *here-and-now* of the session, at a mental and physical level. It is taken for granted that this should be achieved without colluding with the neurotic ploys brought into the relationship by the client as part of his/her defense mechanisms. Using organismic terms, these ploys express the closed "cortico-spinal circuits" (Brown, 1990, p. 313); that is to say they are a modality of psychic function isolated from the totality of the organism operating in the service of the false self. The concept has some significant similarities with Winnicott's (1949) definition of "mind-psyche".

For psychodynamically-oriented therapists, a relevant problem in this field is one of being aware of what is being projected onto the patient, avoiding either colluding or clashing with him/her (Shafer, 1983; Gorman, 1991) - not an easy matter for anyone. How can this be achieved? What can help us in the choice of the most suitable therapeutic strategy for that particular individual, or more realistically, to realize quickly when we are navigating in treacherous waters? The organismic psychotherapist initially supplied very few answers and Malcolm Brown's way of seeing the question seems only to have been modified in recent times.

Here is what Brown (1990) writes in Chapter Six of his book on the evolution of the therapeutic relationship: "The wise body psychotherapist….always perceives and relates to the client from his own alive and intact primary dynamic feeling centres….the therapist's half-conscious/half-unconscious cultivating of a therapeutic relationship thus rests upon the final flowering of his-her own primary dynamic feeling capacities in their more advanced stages of individual transformation"(p. 221).

These statements may provoke a shiver of apprehension: who will ever be capable of so much? Taking these affirmations too seriously would result in a superhumanization of the organismic psychotherapist. At the same time the statements say very little about the risks and difficulties of the relationship. We know that choosing to dedicate oneself to a profession (that of therapist) which involves being face to face with emotional suffering for many hours every day, can only spring from an attempt to heal one's own "wound" and hence to enter into contact with the most problematic and painful parts of one's own past; the important thing is, as Carotenuto suggests (1988, 1998), to be capable of transforming this wound into a window, a privileged observation point making it possible to lead the client out of the tunnel of neurosis. There is no indication of a guideline beyond ourselves to tell us when we are sufficiently restored to health and, if we look into ourselves, it may be that the road to becoming "good-enough" therapists would seem to us to be like an ascension towards the status of demigods. This is not to everyone's satisfaction. Not everyone feels they have the appetite for such a thing.

A systematic reflection on the theme of transference/ countertransference in Organismic Psychotherapy may be hindered by the fear of encouraging a cold mental attitude, devoid of empathy toward the patient. To alleviate this concern, however, in a seminar dedicated to the practice of psychotherapy after the age of sixty, Brown (1992a) states:

> Let me to ferret out a few more of these unnatural and demanding costs upon one's soul. The most pervasive one is that, to the extent that you must give your whole being and soul to those who tend to either over-idolize or imprint themselves upon you in the form of their idealized projections and identifications, you are forced by circumstances to adopt a mirrored self image that is too falsely lofty, too exaggeratedly exalted, and one-sidedly slanted towards behaving as if you were perfect….the nature of the unconscious interpersonal transference is such that it tends to absorb and swallow up into a enormous web the psychotherapist's own self-image during the course of his or her conscientious efforts to identify empathically with the point of view of the patient. We are both seduced and forced unwillingly…. to acquire almost a superhuman set of

> imaginative and feeling sensibilities that are indeed partly real but also partly fabricated and artificially created….we have no choice but to mirror for them a kind of fully functioning perfection of beingness and at the same time an other-worldly spiritual saintliness ….If the therapist must maintain his role as a superior human being and wise savior he also cannot tolerate facing or opening himself at any level to the patient's negative transference (Brown, 1992b).

Brown rightly warns the therapist of the risk of unconsciously building a messianic image of himself to the point of encouraging the client in his need to project superhuman images and powers onto the therapist. He recognizes a series of professional risks to do with the yoking of the unconscious projections of the client to the equally unconscious self-image that the therapist may be cultivating. Again, the terms transference and countertransference are used here, as they would be understood in psychoanalysis. Brown recognizes, furthermore, the existence of negative transference and the need for the therapist to deal with it. This latter aspect is no small matter because, practicing a style of therapy based on Rogers' assumptions of the empathy and the unconditional acceptance of the client, one might legitimately suspect that the organismic psychotherapist might be distracted enough to forget that the negative components of transference are always present and that, as Reich (1933) reminds us in his systematic research on this topic, they should be dealt with, as should the positive and idealizing aspects. The classic studies of Schafer (1983), Kernberg (1984) and, more recently, those of several French psychoanalysts, Maugendre (2000), Kaswin-Bonnefond (2000) and Porte (2000), confirm this assumption.

Organismic Psychotherapy shares with Jungian analytic psychology the conviction that the modalities that are used to approach mental suffering essentially reflect the personality and unresolved conflicts of the therapist (see: Carotenuto, 1986, 1988, 1998, 2003), who operates more as an artist than as a scientist, since the only instrument he has available for practicing his profession is himself, his personality. However, there are substantial differences between holistic-organismic notions and Freudian theory. Whereas Freud had an essentially deterministic vision of humanity, linked to late nineteenth century scientific tradition, Brown's organismic approach has its origin in Rogers and Goldstein's (1934) assumption that each individual has within him/herself the potential conditions for healthy and creative development and that the failure to realize this potential, the cause of mental problems, is attributable to negative environmental influences (Hall & Lindzey, 1978). The risk is that this optimistic vision of humanity may lead to blaming the most unpleasant and worrying aspects of our personality on the system of the false self and thus on the conditioning of the external environment that has not accepted us as it should have, rather than on our basic nature. The consequences of this can be a tendency to give less importance to these aspects, at least in writing and in theory with some important exceptions within the organismic approach.

In her master's thesis, Katherine Ennis Brown (1987) compares various aspects of organismic and Jungian theory, in particular that part of the personality that analytic psychology calls the "shadow" and that Jung himself (1917) describes with the following words in his "Psychology of the Unconscious": "By shadow I mean the "negative" side of the personality, the sum of all those unpleasant qualities we like to hide, together with the insufficiently developed functions and contents of the personal unconscious. " (Brown, 1987, p. 38).

Ennis Brown in this and later writings (1995), agrees with Jung in considering the unveiling of the shadow elements as a necessary step, although a painful one, towards self-knowledge. This is an indispensable aim for any psychotherapy, because the shadow contains a lot of human potential which is needed for self-actualization. There is a lot of strength, a lot of energy in the shadow that we need to have at our disposal so that life does not find us defenseless. Various factors make this process of integration problematic: the extremely emotional and unconscious nature of shadow elements that makes them difficult to deal with, the archetypal basis of some of them, and the defensive tendency which makes us project them outside ourselves. Furthermore: the archetype of the shadow is the devil and

> The discovery of our shadow forces us to contemplate anew the problems of good and evil. If we take up the challenge, it becomes an inner, moral struggle between collectivity and individuality, which can shake our perceptions of ourselves to the core (Ennis Brown, 1987, p. 40)

Ennis Brown's conception is not at all the same as the philosopher J.J. Rousseau's idea of the "noble savage" (Rousseau, 1755), whose innocence can only be compromised by contact with an unhealthy civilization. Ennis Brown affirms that the aim of the psyche is not the achievement of a condition of perfection, but to become "whole", which involves regaining possession of precisely those parts that have remained in shadow. This means that among the guidelines for the therapist, whose official task is to share part of the journey towards the integration of personality with the client (Carotenuto, 1992) until he is able to carry on the journey alone, are the following:

> Theories and knowledge may help the therapist to understand the patient and to question what is happening between him/herself and the patient, but they are not helpful in establishing a relationship between them. It is

> the therapist's ability to perceive and relate to the psychic reality of the patient that will provide the contact ground of the relationship. On this ground, they will meet, and there the conscious and rational intentions, which both have brought to the encounter, will be modified by the unconscious and irrational aspects of their personalities (Ennis Brown, 1987, p. 123).

These statements reveal a way of interpreting the relationship between theory and practice, between knowledge and experience that may clarify some of the questions raised earlier, in the first part of this essay. Theoretical knowledge is not there to serve the client but the therapist. It helps the former to understand, to examine what is happening within him/herself, in the other person and in the relationship. From a modern cognitive-constructivists perspective it can be said that a theoretical frame of reference has the adaptive function of giving structure to the experience, providing an orientation and a form of knowledge of the world from different aspects of the environment (Neimeyer, 2002). It is taken for granted that it is the responsibility of the informed psychotherapist not to abuse this knowledge in his/her relations with the client, being helped in this by the paradoxical theoretical instruction, already discussed, to leave theory out of the sessions.

One of the most useful tools in pursuing this aim will be the acquisition, through training and adequate experiences, both of the development of an awareness of one's own emotional reactions to the expressions of the client, and the capacity to maintain the awareness of these reactions during the course of the relationship, however inconvenient and difficult this may turn out to be. It is the constant activation of the physical-emotional level (or of countertransference) in the therapist that makes it possible to keep theory to him/herself, when needed, without evading the relationship.

Guidelines

Brown's suggestion made recently at a recent seminar held in Bologna when asked about what emotional attitude was appropriate for the therapist to "Keep your ego out of the consulting room!", should be taken as an invitation to avoid the arrogance of thinking you know better than the client what s/he needs. However, this suggestion cannot be taken to mean that the "good-enough" therapist is one who transforms him/herself into a sort of passive sounding board for the emotions of the other person, completely neutral and without personal characteristics. Otherwise, with each client every therapist would have the same opinions, the same emotional reactions; we know that in reality this simply does not happen. "The fact that the famous "wound-window", writes Carotenuto (1998), "is different for each wounded person, and the mental landscape that can be discerned and investigated through that opening is different, not just for each client, but also for each therapist" (p. 105).

Although capable of empathy, no psychotherapist can feel what goes on in the client's organism better than client. This comment might seem superfluous, but it has become a part of the common language of body-oriented psychotherapists to say: "I feel the client's sadness, or anger or stomach-ache" that it should be remembered that the stomach that hurts is that of the therapist. What the therapist experiences in the session is (also) a very personal reaction to the other person and to what that person is experiencing on a physical, emotional and mental level. It is therefore important that professional therapists train themselves in self-awareness and that they be able to recognize what aspects of their psyche and organism are most involved in the client's problems. This is necessary in order to be alert to the risk that transference might lock on to some ancient, incompletely resolved psychic conflict, as suggested by Ennis Brown that could take the therapist on a collision or collusion course which would compromise the favorable outcome of the therapy.

If the therapist is able to use this recognition as an indicator of the type of process the client is going through, s/he may be able to help the latter to develop and, if possible, to modify the process. The goal is, however, anything but easy to achieve; the very projections of which the therapist is an object may seem so extraneous, that s/he thinks: "this thing is not mine, it does not belong to me!".

The eminent neuropsychiatrist, Paul Schilder, came across an unusual phenomenon (Kauders & Schilder, 1922). While at work, using the techniques of hypnosis with a masochistic client, he felt decidedly sadistic reactions and feelings arise in himself and he was convinced that these were neither a product of his past nor of anything to do with his life at the time. Schilder deduced that such feelings were unconsciously "evoked" by the client: reactions that coincided with those of the client. Schilder did not give a name to the phenomenon he had discovered and wrote about it a couple of times (surprised that his account did not create a sensation) and, underlining the fact that countertransference was not sufficiently recognized in the psychoanalytic literature, called for an investigation into how the therapist's emotions could become complementary to those of the client.

Schilder's invitation fell on deaf ears until the fifties, when psychoanalysts began to be interested in the phenomenon. In recent years it has received a lot of attention and has been given a variety of labels: induced countertransference, provoked countertransference or projective counter-identification (Downing, 1995). Many phrases that one hears in conversations between therapists (e.g. "what I am feeling now is what the client felt in childhood in his/her relationship with the mother", or, "….what the mother felt in her relationship with the client") seem unnatural and exude a kind of perplexing supernatural aura. This mechanism, defined by Melanie Klein

(1946) as projective identification reveals what is there in the therapist and not what is in the client or in the client's mother. Schilder was detecting his own sadism, evoked by the client and by the process they were experiencing. If he were not capable of having sadistic feelings there would have been nothing to "bring out". In other words, the wider the range of emotions, feelings, devils and wounds that the therapist has acquired through his/her personal history, the greater will be the resonance s/he is capable of providing and, in the last analysis, the greater the success of his work.

To return to Organismic Psychotherapy, Ennis Brown stressed that the process of recognition and assimilation of projections is a fundamental part of therapeutic work. The power and the role of the mechanism of projection go way beyond what can finally be usefully made explicit and brought to the client's consciousness during psychotherapy to the extent that they become in some way part of the very tissue of the therapeutic relationship itself. It is a characteristic of the contents of the unconscious that they are projected onto the "other", independently of their quality, positive or negative, archetypal elements included. The combination, often paradoxical, of rules and permissiveness, and the encouragement of communicative behavior which is as open as possible, strongly characterize the therapeutic relationship and encourage projections and transference. Yet because of the very position s/he occupies, the client "does not know". It is not only a question of ignorance, for example, of the psychotherapeutic process but a lack of emotional knowledge, of oneself and of the other, of the feelings and bodily reactions that are progressively evoked and that, surprisingly, manifest themselves in the course of the relationship.

Every time we face a situation that is not already firmly enough part of our experience, we automatically (and unconsciously) have recourse to a mechanism of projection. The psyche does not easily tolerate losing itself in a meaningless void and in its *orror vacui* tends to decode the ambiguous stimuli it is exposed to in terms of what it knows already, as is well-known to psychologists who use projective techniques, in particular the Rorschach test. Thus, for example, we all know that some people tend to interpret any physical contact as having a sexual connotation, because this is the only meaning already known and consolidated by experience. This unfortunate assumption seems to be made with some frequency in people who have been sexually abused (Lawry, 1998). The main function of projection concerns both the defense against unacceptable unconscious content and against an intolerable sense of inner void, this latter being a situation of indifference that is disturbing for its absence of recognizable reference points. What the individual uses to fill this void has to do with his personal history. If this has been difficult, it will reinforce the distortion of reality, giving it extraordinarily persistent characteristics.

Whoever undergoes psychotherapy discovers that the journey of growth and healing, as it gradually allows him/her to "retell" his/her own personal history (Shafer, 1992), involves a gradual re-appropriation of the psychic material projected (also) onto the figure of the therapist, material which anyway had given structure, however negative, to his/her way of being in the world. Consequently, s/he will find him/herself inevitably facing an emotional and/or existential void, which among other things, it would be better not to fill with content coming from the therapist. We accept, therefore, Carotenuto's advice (1998) aimed at the "sorcerer's apprentices": "Remember the warning you must have heard many times from your high school teachers: "Don't prompt! Whoever prompts does damage to himself as well as to the class-mate he would like to help" (p. 110).

This part of the process will be facilitated all the more if the therapist is capable of recognizing this special kind of inner void and can tolerate it together with the other person without attempting to do anything to fill it, until a new vision of the world and of him/herself arises in the client, together with a new repertory of strategies for coping with his/her psychic wounds.

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Health-threatening *Bulimia Nervosa* and a Promising New Treatment Approach

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Abstract

Patients with eating disorders such as *bulimia nervosa* (BN) are well known to be difficult to treat psychotherapeutically. A vast literature on cognitive behavioral psychotherapy (CBP), still the treatment of choice, given to in-patients for a limited amount of time testifies to the discouraging low success rates. No literature on the success rates of a body-oriented psychotherapy treatment exists as yet. This article describes highlights from the first two years of an ongoing bioenergetically oriented psychotherapy of a young woman suffering from BN with compulsive self-injury behavior, the most severe form of BN. Since eating disorders according to recent research data have certain defined neurobiological deficits, I felt it important for the patient to know about these and made psychoeducation a part of the therapeutic treatment. The combination of psychotherapy and psychoeducation proved to be of great value. Since the therapy is still going on, it is, however, too early to say whether this approach seemingly able to reverse the neurobiological deficits also is of lasting effect. Based on scientific data and the personal experience so far a 7-point treatment program for BN and similar eating disorders is proposed.

Keywords

Bulimia Nervosa – Neurobiological – Neurobiological Deficits

Introduction

We are spectators of one of the greatest cultural ironies: We produce food in excess and continuously invent tempting ways to consume it, but we are told at the same time that gaining weight is bad, ugly and unhealthy. Remaining slim is equaled to being beautiful and successful. The sad result is that for young women especially, life has become a daily battle around eating, an obsession, a life under pressure and fear often lived in secrecy and shame. In order to achieve their goal of remaining slim they either eat like a bird, picking on food only and thus keeping their weight down (leading to anorexia) or they discover how to get rid of ingested food, by self-induced vomiting (a condition called bulimia). While the shape of the anorexic woman reveals her condition to the trained eye, the bulimic woman by her looks alone cannot be distinguished from other young women. Both types of women are playing havoc with their lives without being aware of it, for they are in danger of physically breaking down anytime and requiring emergency hospitalization.

Anorexia nervosa (AN) and bulimia nervosa (BN) as these eating disorders are officially called are on the increase in all civilized countries. In Europe and the USA a conservative estimate is that about 1% of all women between the age of 15 and 35 years are anorexic (Kaye et al. 1998) and about 3% of European and 10% or more of US women are bulimic (Hettinger 2002). Sometimes anorexic persons turn into bulimics and occasionally men suffer from these disorders as well, but women are clearly over represented.

The statistical data would suggest that AN and BN are problems of modern society, but this is not the case. Anorexia and bulimia have been around in Antiquity. Both names are Greek, anorexia, composed of “an” plus “orexia” means “longing for something, reaching for something”, and bulimia is derived from “limos” meaning “excessive eating”. Both forms of disorders have been described by Hippokrates and Xenophon, the fathers of modern medicine. The meaning of the names tells us that eating/not eating is a symptom for something more profound at the basis of the disorder. Such was not even considered in the 1980ies when at least one study claimed that eating disorders among students, especially ballet school dancers etc. aged 15 to 27 were a normal part of development and did not require treatment (Abraham et al. 1983a). Today we know better. They are serious disorders in need of medical or psychotherapeutical attention or a combination of both. Let us then take a closer look .

Table 1.Eating disorders and their symptoms (according to DMS-IV and ICD-10)

Disorder	Thinking of Food = Hunger ?	Awareness of Disorder	Eating Habits	Weight Control	Body Image
Anorexia nervosa	never ?	sometimes	open, only picking food	starvation exercise	distorted view
Bulimia purging type	always	yes	secret, binge eating	self-induced vomiting laxative abuse	distorted view
Bulimia nonpurging type	always	yes	open, eating more than expected	exercise in excess, fasting	distorted view

Bulimia multi-impulsive type	always	yes	secret or open, binge eating	self-induced vomiting, laxative abuse, exercise, fasting	distorted view

The common denominator for AN and BN patients is an aberrant pattern of eating and keeping the body weight below normal. (A normal weight is defined as a BMI[2] of 20; a BMI below 20 means underweight, 17.5 is considered the life-threatening cut-off point, often seen in AN patients.) Furthermore these patients have an unrealistic perception of their body shape leading to a distorted view of the body image. In general they perceive themselves as too big, too fat, too heavy and therefore ugly regardless of their weight or shape.

The third type of BN, the multi-impulsive type, exhibits impulse control problems in addition to the typical BN features and is the most severe type. The compulsiveness can take on the relative harmless form of buying unnecessary objects or of shoplifting or the much more alarming form of self-injury, like cutting the wrists with razor blades or scissors, as a means to break the intolerable tension, anger and fragmentation. Injurious behavior is seen in 25-40% of all BN cases (Leithner et al. 1998) Sometimes it is these very frightening moments of unbearable tension which will finally motivate a BN woman to seek psychotherapy, often after many years of suffering. However, only one out of three bulimic women with compulsive behavior apparently has the courage and motivation to do so (Tarr-Krüger 1989).

Onset of AN and BN in early adolescence.....

Our “eat yet remain slim”-oriented society is often made into the chief culprit for the AN and BN disorders, but is society alone to be blamed? On a superficial level it may seem so. For AN and BN emerge in early adolescence when girls become women and when the changing body shape is noticeable and menarche sets in (Halmi et al. 1979; Fairburn et al. 1997). To enter the world of sexually attractive and competitive adolescents is not necessarily something every teenager is looking forward to – much depends on the upbringing pattern, the degree of self-esteem, of identification, of assertiveness, inner values and much more, too broad a subject to discuss here. It may be so frightening that to remain a child may seemingly avoid the problem of growing up. Refusing food helps maintaining a skinny and lean body shape. Some adolescents chose this way to remain in their little-girl bodies and become anorexic. Others struggle with their developing feminine body shape due to an idealistic picture in their mind of what their body should look like, and they may go to extremes trying to obtain it (eating, then purging, abuse of laxatives, exercising in excess) without ever being satisfied. Others wish they had a different body altogether (Halmi 2002). AN and BN personality types have an identity problem. Something has gone wrong during their development into a woman.

.....is often based on childhood deficits

Their history often reveals serious childhood deficits (Battegay 1987; Kämmerer 1989; Kämmerer & Klingenspor 1989). These have to do with not being loved enough, not being seen, not being supported, not being valued, not being praised enough, etc. etc by either the father or the mother (Abraham et al. 1983a; Battegay 1987) or by getting ambivalent messages from a parent (Downing 2002). Clearly by the time they are teenagers, since they have never felt secure in mind and body, they now feel even worse and the problems are aggravated. If the marriage of the parents after all these years is on the rocks, but they stay together, the prevailing silent tension does not go unnoticed by the teenagers. Secretly they worry a great deal about the marriage of their parents, they are confused in their love for them. They rebel against their authority yet feel ambivalent towards them. Identification of the boy with the father seems less problematic than identification of the girl with the mother, as we only rarely see AN and BN in male adolescents. Not wanting to be like the parent (an unconscious process at first) can take the form of not wanting to grow up. And for girls, there is the additional problem of rivalry with other girls about looks and shapes. Tricks for staying slim are sometimes open secrets and are discussed among teenagers. While the AN woman openly and often proudly displays her shape and is sociable, the BN woman, living with a secret, feels guilty, dirty and ashamed and very lonely. She would rather hide than socialize. Because her lifestyle is her big secret and her body shape does not give it away, she often goes on for years before either breaking down physically or seeking help.

What is a good-enough psychotherapy?

AN and BN patients are ambivalent towards such topics as their body and nutrition. Thus it may be a good idea at the beginning of the therapy not to place too much emphasis on either subject, but to let it develop. It is my opinion that the developmental deficits with all their ramifications and/or childhood traumas must receive prime attention – being at the roots of the problem, with the bodies of these patients representing merely the outward symptoms. Since AN and BN patients have basically split off from their body, clearly a serious psychotherapy should also include body work, applied with utmost care and sensitivity. The problem is that we have no guidelines as yet with regard to specific techniques and bodily interventions etc. in body oriented psychotherapy for AN and BN patients.

A literature search on treatment of AN and BN reveals that the preferred treatment is cognitive behavioral psychotherapy (CBP) with emphasis on diet plans, weight control, nutritional education etc. Success rates are not encouraging, however, only 30-50% healed, with a drop-out rate of about 30%, another 30% considered incurable and about 10% ending in suicide (all figures for BN; Abraham et al. 1983b, Fairburn et al. 1993, Keel et al. 1997, Strober et al. 1997, Kaye et al. 1998). This information convinced me that treating primarily symptoms, e.g. the faulty eating patterns is unlikely to bring lasting relief.

I decided to use a different approach, whereby the topic of eating and body weight was excluded from my part, but of course addressed, if the incentive would come from the patient.

In the following I describe highlights of the first two years of an ongoing bioenergetically oriented psychotherapy of a BN patient interspersed with new research data or theoretical aspects as I see fit. Some of these I considered important enough to be discussed with the patient during sessions. Although I shall concentrate on bulimia, it is sometimes unavoidable not to include comparative aspects to anorexia due to the similarity of the disorders.

Case report: Ellen

Ellen (29 years old, not her real name) readily told me that she is a bulimic since the age of 14 and that a previous psychotherapy brought no results. After 15 years of feeling trapped in bulimia she could not stand any longer the stress and tension her lifestyle created. She needed and wanted help badly. Now her stress became my stress: I felt under considerable pressure to succeed with this therapy, since the former failed.

I declared at the beginning of the therapy that I was not going to mention food or anything related to food, weight, diet etc. unless she wished to speak about it. It was a subtle way of putting her in control. She felt visibly relieved. I explained that I was more interested in what happened in her life, especially in her childhood that led to her disorder.

She talked about her family and growing up. The facts emerged as bits and pieces during a number of sessions, not at all in a chronological order – as much was very embarrassing for Ellen to say. I learned that her father used to tease her about everything and anything, already as a little girl which made her chew her fingernails down to the bone, but especially about her looks and height later on (she is over 6 ft. tall and broad boned, taller than anyone else in the family) which reduced her to tears and made him laugh. All the while her mother would downplay this by saying “he did not mean it, it is alright”. As a teenager and in the hope of pleasing her father she started to starve herself, then to binge-eat. Ellen felt ashamed for what she was doing, guilty and dirty due to the constant secret binge-eating, induced vomiting and subsequent hurried cleaning up of any traces. These feelings were so strong that Ellen even now, when she came for therapy, was convinced that people could see what she was doing by just looking at her. Attending meetings at work and having to answer to questions would cause embarrassment, make her face flush and create an intolerable tension. Just how bad this was, I learned later in the therapy.

With Ellen not trusting either parent, I figured it would be a while before she would trust me. Did her parents know about her binge eating behavior? Her father did not, her mother did, but said nothing. As a teenager when still living at home she did not binge eat and vomit as much as now yet, she said. “What about now?” I wanted to know. “Well now, yes, daily”. I became very worried, feared for the worst and insisted that she must have a medical checkup - and walked right into my first confidence test. What I said scared her, she refused, but I insisted. We had our first argument. I knew the physician and I knew that he would not “treat” her, just check her physical status and leave the treatment to me. Ellen probably realized that she risked that I was not continuing to work with her if she would not start taking responsibility of her body. And so she reluctantly went for this check-up. It turned out a very positive experience, her blood values were normal and I let her know my relief. I remember that I said: “I care about you”. It was also the beginning of a trusting relationship both with this physician and with me, though shaky at first.

Ellen knew that I would also work with the body whenever appropriate. In the 4th session I felt the timing right to give her a short introduction to body work by suggesting that she should roll a tennis ball under her foot and just feel what this was like. She refused point blank. Then she said that she feared that I would trick her into an embarrassing situation (like her father). I felt anger coming up ("I am not your father"), then took a deep breath and explained that I would do it in parallel with her and that she was allowed to quit this and any other bioenergetic intervention anytime, if she felt uncomfortable. With that option she dared, with her heart beating up her throat, she was so scared. Later, when speaking about what she felt, she was pleasantly surprised at what all she did feel, such as differences in temperature in her legs, in the arc of her feet, and her general feeling of elation. She smiled warmly and left the session feeling really good, she told me next time.

In the 5th session Ellen told me about her extended family and revealed eating patterns so ambivalent that I did not wonder anymore she was confused. Her mother was one of ten children, the family was poor and they raised their own vegetables and rabbits to fill all the hungry mouths. Her father also came from poor background where they tried hard to make ends meet. Ellen's two year older brother,with an inborn nutritional error of metabolism, could barely gain weight and remained small and skinny in spite of eating. Ellen, her brother and her parents often went to visit relatives; Ellen recalls visiting one particular aunt, sister of her mother and always feeling hungry there because the aunt limited the food on the table – and then another aunt who quite the contrary wanted to stuff everybody.

Ellen's father developed cancer of the throat, could not swallow anymore or breathe because of the metastases in the lungs and died a horrible death. Ellen was present when it happened. To talk about the death of her father caused her enormous pain. I was reminded of my own father's death and tears came to my eyes which Ellen noticed, as she looked up for a quick moment, then went into silence looking down on the carpet, her mind wandering to some place where I could not reach her. I stretched out a hand offering contact – she refused. I felt helpless.

It was our 10th session and it became a long session in silence. At the end, in my frustration I tried an approach I had not ever done before. I asked her since she found it so difficult to say out loud what was in her heart, whether she could put it into writing, and if she wished send it to me as an e-mail. The same evening she wrote a few lines, maybe to try me out. I answered. She wrote back, more lines this time. I replied again, just a few words. I was touched by her writing style and her depth of expression. During the next session I told her how her mail affected me emotionally and encouraged her to use this means of communication further if she wanted. For the next 4 or so weeks, she continued with e-mails between sessions and in writing she could express things she could not say otherwise. We still endured many silent moments during the sessions, but I passed on to her how her emotional expression, sometimes written between the lines, touched me. It had an effect: She let me sit closer to her, but not yet touch her.

Ellen could now write about her deep depression, her despair, her not wanting to live any longer. Unexpectedly I discovered that Ellen was a gifted writer, that she had written short stories before but had never shown them to anyone. To be finally seen and acknowledged was a big boost.

One day she wrote that she would like to tell me a secret she had never, ever, told anybody, but was afraid to do so. With my encouraging reply she did. It was about her first menstruation, which caught her unprepared, a most embarrassing moment in school. She said that the fear that everyone in her class could see stains on her clothes and know about it made her face blush in the deepest red; never had she felt so ashamed. Her mother said nothing. Ellen felt abandoned. This story broke the silence. From now on Ellen could talk and regular e-mail stopped. She could even say that she longed to be held by me (but would NEVER allow it – although later she did) because she felt dirty from the binge eating and vomiting, that she feared I would be disgusted and she said almost shyly that the time between sessions felt extremely long and lonely.

As we found more and more answers in her childhood and family relationships, she went into regression. She chose a corner to sit down on the floor, folded her body into the smallest possible package, hugged her knees, looked at her bitten fingernails and sat in silence. Her position was that of a small child, abandoned, alone, lost in time and space. As I looked at her empathetically, my mind side-tracked into her childhood.

Hunger has many different forms

Eating disorders are actually hunger disorders. The hunger which is now for food as in the case of Ellen, originally was another one. Hunger has many different forms (Battegay 1987). For a baby, there is hunger for body contact and cuddling, for attention, for playing, for making eye contact , for conversation with sounds, for love and all its expressions etc. etc. And for the small child there is hunger for love, for being seen, heard and felt, for being physically close to a parent, for being allowed to say NO, for being able to accomplish a small task, for praise etc. etc. And we continue: from the age of going to school to the end of our life we want and need love, praise, emotional support, encouragement, empathy when things go wrong etc. etc. Hunger for love is always first. Unfulfilled hunger in the long run can lead to a depression. The depression may not be conscious and can take on different forms of substitutions: drugs, alcohol and food or combinations thereof. Downing (2002) stated that eating disorders are substitutions for underlying problems originating most likely in childhood.

As Ellen sat in silence, I waited. A single tear ran down her face. When I asked her where in her mind she was, she said that she could not answer as she did not know. I extended my hand and offered it for contact, but she refused to accept it. She said her hand was dirty, therefore she could not allow me to touch her. I resorted to a teddy bear I keep in my practice and placed him into her arms. This brought a thankful warm smile and also tears into her face as she cuddled the bear. That day, she told me later, she decided to buy a bear for herself. The teddy bear incident had broken the ice and some time thereafter touching, even holding her was possible, permitted and wanted.

Then one day she came in with a dead expression on her face, said nothing, sat down in her usual corner, but pulled up a sleeve. I saw and learned for the first time that she had cut her forearm with sharp scissors. I was alarmed and feared for the worst, especially as she had mentioned more than once before that she often wished to end the suffering. She was clearly suicidal and I felt guilty about having misjudged the seriousness of it all. I let her know how worried I was and decided to use that session to educate her about depression in general and depression in bulimia with compulsive behavior in particular. Let me deviate here into what I told Ellen.

Stress leads to depression

It has long been known that stress causes people to become depressed. The stress that hunger disorder patients find themselves in is caused by their eating pattern and the aberrant behavior of weight regulation, leading in addition to anxiety and a low self-esteem. It is a vicious circle. Biochemically a depression signifies a deficit in brain serotonin, which can come about via three mechanisms (Pinel 2001):

- Serotonin synthesis (from tryptophan, an essential amino acid) is decreased. This leads to insufficient serotonin being present in the synaptic cleft (the space between two neurons) and thus an insufficient signal transmission.
- Serotonin re-uptake by the original neuron, done by specific transporter proteins present in the synaptic cleft, is too fast and again not enough serotonin is available for signal transmission.
- Serotonin degradation, a normal mechanism for removing extra serotonin in the neuron and done by monoamine oxidase (MAO) is too fast.

Various chemical substances are known to exert their specific action at just one of these sites and not the others. Thus, some inhibit specifically MAO, others specifically serotonin re-uptake. Among the latter is fluoxetine[3]. Norden (1996) collected data on all disorders reacting positively to fluoxetine and found that *all* eating disorders (AN, BN, overweight and obsessive compulsive disorders) do so. This is proof that not only all patients with an eating disorder suffer from a depression, but that this depression has a defined biochemical deficit and that its location is known. A number of publications on the effect of fluoxetine (or a similar compound) in curbing binge-eating behavior followed (Kaye et al. 1998, Kruger & Kennedy 2000, Mitchell et al. 2001, Bacaltchuk & Hay 2001) all with positive effects. I ended this outline by suggesting fluoxetine as being a medication worth trying.

> Ellen listened with great interest and reacted with relief: “Now I finally know what is wrong with me”. I sat across from her on the floor, holding her hands and she understood that I was dead serious about this. She agreed to speak to the physician I had recommended earlier and go on fluoxetine.
>
> A miracle happened. Within two weeks on the medication Ellen told me: “it feels as if my head is holding together for the first time.” Within two months on the antidepressant she was able to reduce the purging behavior to about once or twice a week on the average and she did not cut herself for almost 4 more months. She decided to stay on the drug although the recommendation was for four months. While she now

[3] Fluoxetine is sold in the USA as Prozac, in Europe as Fluctine.

readily answered my questions about effect and possible side effects (there were none) of fluoxetine, she did not mention her eating behavior and I did not ask. But I could feel that she now trusted me completely. Whether it was the fluoxetine or her trust in my abilities as a psychotherapist, I do not know but she could let go more of her inhibitions, her fear of making a fool of herself and feelings of shame diminished. This in turn allowed more body work. Grounding, breathing work on the mattress, stomping around the room, all of this became possible, as did crying and laughter.

One day Ellen started all by herself very openly to talk about the problem of discipline in eating, of "thinking about food" all the time, but not being sure whether this was equal to feeling hungry and about not knowing the feeling of satiety. Her interest in hunger and satiety feelings however stimulated me to go into a literature research. Here is what I found out:

How hormones control our hunger and satiety feelings: recent research data

Is thinking of food equal to feeling hungry? AN and BN patients both will tell us that they are constantly thinking about food, but they do not mean the same thing.
The AN patient thinks about it in terms of avoiding food altogether, how not to have to eat. The BN patient thinks about food in anticipation and fear of the next meal. If we ask them: "do you mean that you constantly feel hungry?" they are not sure. If we ask them: "do you know the feeling of satiety?" Both will answer "no". This is something important for us therapists to remember: it tells us that the appetite control systems in the brain of our patients are not functioning properly. Our patients, unlike normal people, cannot feel hunger or satiety and they confuse thinking about food with feelings about it. This already suggests that on a biochemical level some regulatory mechanism must be out of order.

The feeling of hunger as well as the feeling of satiety occur through the concerted action of several hormones produced by different parts of the body and centrally controlled by the brain. Thus sometime before we even notice a feeling of hunger ghrelin (GHR) is synthesized in the stomach. This sends a signal to the brain, to the pituitary which now releases growth hormone (GH) and prepares the stomach for food. GHR tells us that it is time to feed our body and this saves us from starvation. Some time after we have eaten, about 20 minutes or so, the hormone cholecystokinin (CKK) synthesized in the intestines tells the body that there is enough food, sends a signal to the arcuate nucleus (ARC), a specific group of neurons, in the hypothalamus which send a signal to the intestines where now several peptides belonging to the family of the so-called PYY hormones are produced. They control the appetite for sweet, salty etc. and in concerted action with insulin and leptin make us stop eating (Marx 2003). In other words CKK prevents us from overeating. Leptin is a hormone synthesized in fat cells. Together with insulin it regulates the energy balance, e.g. food input versus energy output in the long run, in other words the stability of the weight of a person (Marx 2003). All these hormones (actually small peptides) and their action are recent discoveries made during the last 10 years only (Marx 2003). In eating disorders one or possibly several of the regulatory mechanisms for appetite control are not functioning. At the moment we do not know whether the imbalance of the appetite, hunger and satiety-controlling hormones is the result of the depression or whether the unhealthy eating patterns gave rise to the hormonal imbalance and hence to the depression. While AN patients lack the feeling of hunger and consequently of satiety, BN patients claim to be ravenously hungry (and sometimes confuse this with the tension they are under) ,but lack the feeling for satiety. The key question here, of course, is can the hormonal dysregulation be re-established through psychotherapy? Can an altered thinking or behavior make the brain talk correctly to the body and vice-versa?

This psychoeducation session created a certain curiosity, an interest in research almost, in Ellen. She asked herself if she could induce the missing hormones in her brain if she would maintain a very disciplined eating pattern. She certainly had my encouragement to try it out, but a week later reported of not being certain about the feelings. It was to be expected that such a change would not happen over night, but it had started a process. For one, it brought up memories of a summer vacation abroad with her husband. She reported that with him she feels so safe (abroad!) that maintaining a discipline in eating was no problem and that she could feel hunger and satiety most of the time. She also realized now what her real hunger way back in her childhood was for: love, security, support, taken seriously and when on vacation with her husband she got this 24 hrs. a day. Last Christmas a curious thing happened. Ellen told me about her anticipation of eating a traditional local Christmas cookie, of which she had fond memories from her childhood. She had not allowed herself this treat for years for fear of not being able to stop eating. "But now", she smiled, "it is different". She later reported in mouth-watering terms about the delicious moment of eating this cookie and most important, how four of them filled her with deep satisfaction. And no, she needed no more. Ellen had no idea that she was actually confirming a hypothesis of mine. I long suspected that there exists an enjoyment factor which works in conjunction with the satiety hormone.

Hunger is a multidimensional phenomenon. When the hunger feeling sets in, we look forward to eating as an enjoyable act. It fills us with anticipatory satisfaction. We hope that the cook prepares a delicious meal as we have

known before. All of us have recollections of good-food or bad-food situations. We may shudder with disgust remembering a particularly bad tasting dish or almost salivate in memory of a particularly delicious dessert. Enjoying the food we eat is based on such discriminating memories. With a cold and blocked sinuses and the need to breathe through the mouth, food tastes rather dull. The enjoyment factor I propose depends on the proper functioning of the taste buds (the gustatory sense) on our tongue which allow us to distinguish between sweet, sour, bitter and salty and on our sense of smell (the olfactory sense) which lets us perceive all those ingredients which give the food its unique flavor, such as herbs and spices and last but not least on our memory which registers all of this. Some patients with hunger disorders cannot recall such good memories with the appropriate emotion. Eating for them was never truly enjoyable; eating in company with people enjoying themselves is a nightmare, and this not just because of their fear of gaining weight.

Ellen had told me several times how she suffered through business lunches and family dinners. Now for the first time she tells about a pleasurable eating experience and how "normal" she felt. If such a proposed enjoyment factor exists – I even venture to claim that it is an endorphin – then it would mean that it can be restored through psychotherapy. Ellen was very excited, I was very excited, it was a giant leap towards healing.

At this time of writing Ellen has been in therapy for 2 years of which 1 ½ years on fluoxetine. Ellen considers fluoxetine a life-saver, she compares it to insulin for the diabetics, but with a difference. The depression being no problem anymore, she feels that her self-perception has sharpened, that her self-image is no longer a big shapeless blob but being adjusted to reality, to what she sees in the mirror and most of the time she likes what she sees. She goes to a fitness center and dares expose herself there. She has gained in self-confidence, dares to speak up at work and even when blushing, it does not throw her into an unbearable tension as in previous years. She cooks for friends occasionally and enjoys it, that is new. She continues to write. She also discovered painting as a meditative act to calm down. Self-injury is a thing of the past, although at times she can feel the tension mounting, yet it is never so strong that to break it would require to injure herself. Occasional binge eating episodes happen, which she considers "the exception to the rule". The therapy is continuing.

Preliminary conclusions: treating the depression first

Many scientific studies have pointed out that the depression in eating disorders must get priority. Whether we do this by psychotherapy alone or in combination with an antidepressant medication or some other means is a decision to be taken together with the patient. In any case she should be informed about what is known and available in terms of research results and which alternatives exists apart from antidepressant medication.

Since the beneficial effects of fluoxetine in eating disorders became known, a number of studies dealing with other similar specific serotonin reuptake inhibitors (SSRIs; see Berkow, Beers and Fletcher 1999) on anorexia and bulimia followed. Sertraline, paroxetine and fluoxetine - better known under the names of Zoloft, Paxil and Prozac in the USA were the most important ones used. In studies with either these three antidepressants tested in parallel, or fluoxetine compared to MAO inhibitors, or to tricyclic antidepressants (TCA) – the latter two act on different sites in the neuron than fluoxetine – fluoxetine was always best in curbing binge-eating behavior and reducing the drop-out rate (Kaye et al. 1998, Kruger & Kennedy 2000, Mitchell et al. 2001, Bacaltchuk & Hay 2001).

An alternative and interesting route was chosen by Lam et al. (1994) who, having recognized the depression in bulimic patients, used light therapy (a well-known standard treatment for winter depression) and compared it with that of an antidepressant in 17 bulimic patients without psychotherapy. All patients profited. This shows that treating the depression is apparently key. In another study sertraline helped 5 underweight cases of BN purging type to gain weight and to reduce their purging behavior (Frank et al. 2001). In another study where a group of AN and BN patients on SSRI medication was compared with a second group receiving CBP or with a third one receiving both SSRI medication plus CBP, the combination treatment was best (Mitchell et al. 2001).

But the results with antidepressants are not always clear-cut and convincing. Five publications exist about clinical trials with BN (and AN) patients where the effect of antidepressants alone or in combination with and psychotherapy, mostly CBP was studied, which ended with controversal results (Mitchell et al. 1990, Fichter et al. 1991, Agras et al. 1992, L. Leitenberg et al. 1994, Walsh et al. 1997, Agras 1997). The improvement in bulimic symptoms with CBP alone was greater than with medication and combining the two was not significantly better than CBP alone, except for one single case. In summary over the past 30 years, fewer than 20 controlled clinical trials with in-patients were carried out evaluating the effectiveness of various types of psychotherapy (but never body-oriented psychotherapy!) in BN and AN and the evidence remains questionable (Kaplan 2002). Most studies used CBP with a set number of therapy sessions and a very structured daily activities plan. The majority favor an SSRI as antidepressant medication with relatively good results, at least for bulimic patents. Badly needed data on the stability of the result are still missing as are data on out-patients.

Towards a promising body-oriented psychotherapy for bulimic patients

Let me emphasize that eating disorders although also called mental disorders are not genetic disorders. The genes are alright. It is their regulatory mechanisms which are faulty or inhibited and in need of restoring. The question is just how can this be done ?
It is assumed that long-established patterns of thinking and behavior in our brain can be altered through new insights and adapting a new behavior pattern. Learning by conditioning is well-known to achieve this, but the effect is not necessarily and always a lasting one. With mental disorders the problems are much more deeply "engraved", yet the treatment of choice for BN and also AN so far has been and still is nutritional rehabilitation with medical attention, as individuals or in group therapy receiving CBP. The less than 50% success rates (Kaye et al. 1998, Halmi 2002) suggest however, that a purely cognitive approach for treatment of these disorders, with emphasis on strict eating schedules and a neglect of the body feelings is seemingly not sufficient for the patients.

The new neurobiological findings on the malfunctioning of hormones regulating hunger and appetite, and those on depression in eating disorders and the different ways to deal with it, when integrated into our basic knowledge on these disorders should entice us to rethink our psychotherapeutic approaches. Hormonal expressions can often be felt – such as the elated feeling after a grounding exercise is due to an output of an endorphin. By educating a patient about the modern theory on hunger and satiety and stimulating her interest and curiosity in this subject it may start her to want to listen more attentively to the signals of her body. This again challenges us therapists to work on the perceptive abilities of the patient. I have described exercises to increase the perceptive abilities of pregnant women as a means of preparing them for "reading" the baby (Ventling 2001a, 2001b). These exercises for the visual, auditory, gustatory, olfactory and tactile sense are equally well suited for patients with eating disorders; I have done those for the visual and auditory sense with Ellen, with success. She said she "noticed" things differently thereafter; the proof was that she noticed pictures in my office for the first time which in fact have always been hanging there!

A last practical word about BN patients: these women maintain a relatively normal weight and are therefore undistinguishable from the rest of the population by appearance, they also prefer to keep their secret and often may not reveal anything in therapy for a long time, least of all problems of compulsive behavior. Table 2 therefore lists warning signs for the therapist to watch out for:

Table 2: Warning signs

- **Excessive weight loss; fear of weight gain, preoccupation with food**
- **Obsession with clothing size, scales, and mirrors**
- **Refusal to eat with others; ritualistic eating**
- **Excessive exercise**
- **Moodiness; social withdrawal**
- **Frequent vomiting or use of laxatives**
- **Absent or irregular menstruation**
- **Excessive facial and body hair**
- **Hair loss or straw-like hair**
- **Swollen salivary glands**
- **Broken blood vessels in the eyes**

Final remarks: To Eat or Not To Eat

BN (and AN) patients view the body as an enemy, an ugly addition, a cumbersome responsibility, that has to be fed but is neither liked nor loved, just tolerated. Downing (2002) emphasizes that it is important to work with their body as soon as possible, to bring life back. We must, however, remember that these patients are extremely distrusting, therefore building up a trusting therapeutic relationship has priority over body work. It requires us therapists to be patient, empathic, careful and perceptive.
Bulimic patients feel ashamed about what they are doing (AN patients do not). Thus the sensitive therapist will adjust to the individual, although there are no established rules to follow. Bulimic patients must be allowed to decide when and how they want to mention food, eating patterns etc. in the sessions, when to let us therapist into their secret. Probing into their eating patterns will make them clam up, an understandably defensive reaction.

We also need to judge the degree of the depression the patients are in and make it transparent to them. Suicidal thoughts might lurk in the background. It may sometimes be useful to use an antidepressant for a certain length of time. Of course this must remain the patient's decision and requires a prescription from her physician. It can get the patient out of her depression quickly and thus provides a head start for the therapy.

When we find out what their real hunger is all about, patients may regress. We need to remain alert for any suicidal tendencies and act accordingly. To replace the void (which was filled with too much or too little real food) with pleasure, gratification etc. from resources and assets is the next goal. Discovering one's creativity greatly raises the self-esteem, it brings joyfulness into life and thus, hopefully, the beginning of a new freedom.

To sum up, I would recommend to work along the following 7 points when treating hunger disorders like bulimia and anorexia:

Table 3: Seven Treatment Points

- **Do not discuss food, diets, eating patterns or weight etc.**
- **Build up a trusting relationship and educate the patient about her disorder.**
- **Name the depression and explain it. If patient agrees provide antidepressant.**
- **Work on the body, make it come alive.**
- **Focus on the real hunger and its origin.**
- **Work on resources (creativity, interests, talents, social engagement etc.)**
- **Occasionally check on hunger and satiety feelings, returning to normal.**

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CRITERIA FOR ACCEPTANCE
How does material in this manuscript inform the field and add to the body of knowledge? If it is a description of what we already know, is there some unique nugget or gem the reader can store away or hold onto? If it is a case study, is there a balance among the elements, i.e, back ground information, description of prescribed interventions and how they work, outcomes that add to our body of knowledge? If this is a reflective piece, does it tie together elements in the field to create a new perspective? Given that the field does not easily lend itself to controlled studies and statistics, if the manuscript submitted presents such, is the analysis forced or is it something other than it purports to be?

PURPOSE
This peer-reviewed journal seeks to support, promote and stimulate the exchange of ideas, scholarship and research within the field of body psychotherapy as well as an inter-disciplinary exchange with related fields of clinical practice and inquiry.

To ensure the confidentiality of any individuals who may be mentioned in case material, names and identifying information have been changed. It must be understood, however, that although articles must meet academic publishing guidelines, the accuracy or premises of articles printed does not necessarily represent the official beliefs of the USABP or its Board of Directors.

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First consideration will be given to articles of original theory, qualitative and quantitative research, experiential data, case studies, as well as comparative analyses and literature reviews. Submission of an article to the *USA Body Psychotherapy Journal* represents certification on the part of the author that it has not been published or submitted for publication elsewhere.

Initial submission should be e-mailed to jacarletonphd@gmail.com as an attachment in Microsoft Word.

Manuscript should be double-spaced in 10pt. type, with at least a one inch margin on all four sides-please include page numbers, otherwise manuscript should be free of other formatting.

Title, full authorship, **abstract of about 100 words and 3-5 key words precde the text.** Please include an endnote with author's degrees, training, mailing address, e-mail fax, acknowledgement of research support, etc.

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References: References within the text should include author's surname, publication date and page number.

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The editors are eager to receive letters, particularly communications commenting on and debating works already published in the journal, but also suggestions and requests for additional features or departments. They may be sent to the email address below. A selection of those received will be published in the next volume of the journal.

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