# The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma



The Body Keeps the Score by Bessel van der Kolk is a groundbreaking book that explores the deep connection between trauma, the brain, and the body. Drawing on years of research and clinical experience, van der Kolk shows how trauma reshapes both mind and body, and offers transformative insights into healing through therapies like mindfulness, yoga, and neurofeedback. A must-read for anyone seeking to understand trauma and its effects, this book is both informative and deeply compassionate.

## Praise for The Body Keeps the Score

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“This book is a tour de force. Its deeply empathic, insightful, and compassionate perspective promises to further humanize the treatment of trauma victims, dramatically expand their repertoire of self-regulatory healing practices and therapeutic options, and also stimulate greater creative thinking and research on trauma and its effective treatment. The body does keep the score, and Van der Kolk’s ability to demonstrate this through compelling descriptions of the work of others, his own pioneering trajectory and experience as the field evolved and him along with it, and above all, his discovery of ways to work skillfully with people by bringing mindfulness to the body (as well as to their thoughts and emotions) through yoga,

movement, and theater are a wonderful and welcome breath of fresh air and possibility in the therapy world.” —Jon Kabat-Zinn, professor of medicine emeritus, UMass Medical School; author of *Full Catastrophe Living*

“This exceptional book will be a classic of modern psychiatric thought. The impact of overwhelming experience can only be truly understood when many disparate domains of knowledge, such as neuroscience, developmental psychopathology, and interpersonal neurobiology are integrated, as this work uniquely does. There is no other volume in the field of traumatic stress that has distilled these domains of science with such rich historical and clinical perspectives, and arrived at such innovative treatment approaches. The clarity of vision and breadth of wisdom of this unique but highly accessible work is remarkable. This book is essential reading for anyone interested in understanding and treating traumatic stress and the scope of its impact on society.” —Alexander McFarlane AO, MB BS (Hons) MD FRANZCP, director of the Centre for Traumatic Stress Studies, The University of Adelaide, South Australia.

“This is an amazing accomplishment from the neuroscientist most responsible for the contemporary revolution in mental health toward the recognition that so many mental problems are the product of trauma. With the compelling writing of a good novelist, van der Kolk revisits his fascinating journey of discovery that has challenged established wisdom in psychiatry. Interspersed with that narrative are clear and understandable descriptions of the neurobiology of trauma; explanations of the ineffectiveness of traditional approaches to treating trauma; and introductions to the approaches that take patients beneath their cognitive minds to heal the parts of them that remained frozen in the past. All this is illustrated vividly with dramatic case histories and substantiated with convincing research. This is a watershed book that will be remembered as tipping the scales within psychiatry and the culture at large toward the recognition of the toll traumatic events and our attempts to deny their impact take on us all.” —Richard Schwartz, originator, Internal Family Systems Therapy

*The Body Keeps the Score* is clear, fascinating, hard to put down, and filled with powerful case histories. Van der Kolk, the eminent impresario of trauma treatment,

who has spent a career bringing together diverse trauma scientists and clinicians and their ideas, while making his own pivotal contributions, describes what is arguably the most important series of breakthroughs in mental health in the last thirty years. We've known that psychological trauma fragments the mind. Here we see not only how psychological trauma also breaks connections within the brain, but also between mind and body, and learn about the exciting new approaches that allow people with the severest forms of trauma to put all the parts back together again." —Norman Doidge, author of *The Brain That Changes Itself*

"In *The Body Keeps the Score* we share the author's courageous journey into the parallel dissociative worlds of trauma victims and the medical and psychological disciplines that are meant to provide relief. In this compelling book we learn that as our minds desperately try to leave trauma behind, our bodies keep us trapped in the past with wordless emotions and feelings. These inner disconnections cascade into ruptures in social relationships with disastrous effects on marriages, families, and friendships. Van der Kolk offers hope by describing treatments and strategies that have successfully helped his patients reconnect their thoughts with their bodies. We leave this shared journey understanding that only through fostering self-awareness and gaining an inner sense of safety will we, as a species, fully experience the richness of life." —Stephen W. Porges, PhD, professor of psychiatry, University of North Carolina at Chapel Hill; author of *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-Regulation*

"Bessel van der Kolk is unequaled in his ability to synthesize the stunning developments in the field of psychological trauma over the past few decades. Thanks in part to his work, psychological trauma—ranging from chronic child abuse and neglect, to war trauma and natural disasters—is now generally recognized as a major cause of individual, social, and cultural breakdown. In this masterfully lucid and engaging tour de force, Van der Kolk takes us—both specialists and the general public— on his personal journey and shows what he has learned from his research, from his colleagues and students, and, most important, from his patients. *The Body*

*Keeps the Score* is, simply put, brilliant.” —Onno van der Hart, PhD, Utrecht University, The Netherlands; senior author, *The Haunted Self: Structural Dissociation and the Treatment of Chronic Traumatization*

*The Body Keeps the Score* articulates new and better therapies for toxic stress based on a deep understanding of the effects of trauma on brain development and attachment systems. This volume provides a moving summary of what is currently known about the effects of trauma on individuals and societies, and introduces the healing potential of both age-old and novel approaches to help traumatized children and adults fully engage in the present.” —Jessica Stern, policy consultant on terrorism; author of *Denial: A Memoir of Terror*

“A book about understanding the impact of trauma by one of the true pioneers in the field. It is a rare book that integrates cutting edge neuroscience with wisdom and understanding about the experience and meaning of trauma, for people who have suffered from it. Like its author, this book is wise and compassionate, occasionally quite provocative, and always interesting.” —Glenn N. Saxe, MD, Arnold Simon Professor and chairman, Department of Child and Adolescent Psychiatry; director, NYU Child Study Center, New York University School of Medicine.

“A fascinating exploration of a wide range of therapeutic treatments shows readers how to take charge of the healing process, gain a sense of safety, and find their way out of the morass of suffering.” —Francine Shapiro, PhD, originator of EMDR therapy; senior research fellow, Emeritus Mental Research Institute; author of *Getting Past Your Past*

“As an attachment researcher I know that infants are psychobiological beings. They are as much of the body as they are of the brain. Without language or symbols infants use every one of their biological systems to make meaning of their self in relation to the world of things and people. Van der Kolk shows that those very same systems continue to operate at every age, and that traumatic experiences, especially chronic toxic experience during early development, produce psychic devastation. With this

understanding he provides insight and guidance for survivors, researchers, and clinicians alike. Bessel van der Kolk may focus on the body and trauma, but what a mind he must have to have written this book." —Ed Tronick, distinguished professor, University of Massachusetts, Boston; author of *Neurobehavior and Social Emotional Development of Infants and Young Children*

*The Body Keeps the Score* eloquently articulates how overwhelming experiences affect the development of brain, mind, and body awareness, all of which are closely intertwined. The resulting derailments have a profound impact on the capacity for love and work. This rich integration of clinical case examples with groundbreaking scientific studies provides us with a new understanding of trauma, which inevitably leads to the exploration of novel therapeutic approaches that 'rewire' the brain, and help traumatized people to reengage in the present. This book will provide traumatized individuals with a guide to healing and permanently change how psychologists and psychiatrists think about trauma and recovery." —Ruth A. Lanius, MD, PhD, Harris-Woodman chair in Psyche and Soma, professor of psychiatry, and director PTSD research at the University of Western Ontario; author of *The Impact of Early Life Trauma on Health and Disease.*

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# Prologue: Facing Trauma

**Prologue: Facing Trauma**

Trauma can touch anyone, regardless of their circumstances or environment. It’s not limited to soldiers returning from war or those living in conflict zones like Syria or the Congo. The reality is that trauma affects our families, friends, and even ourselves. According to research from the Centers for Disease Control and Prevention (CDC), one in five Americans was sexually molested as a child, one in four was beaten by a parent, and one in three couples experiences physical violence. These statistics show that trauma is a widespread issue, often hidden in plain sight, impacting both the individual and their community in profound ways.

Humans are incredibly resilient, able to recover from wars, disasters, and personal betrayal, but trauma often leaves lasting marks. These effects don’t just disappear; they can manifest in various ways, from personal relationships to broader social interactions. Studies indicate that the trauma experienced by one generation can sometimes be unknowingly passed down to future generations. Furthermore, trauma affects the body and mind, influencing everything from emotional health to immune system function. This complex impact of trauma helps explain why its effects ripple through individuals and communities, shaping behaviors and emotional responses for years.

Trauma doesn’t only affect those who directly experience it; it also impacts those around them. For example, veterans returning from combat often struggle with anger and emotional detachment, which can frighten and isolate their families. Similarly, the children of parents with PTSD or depression are at a higher risk of developing their own emotional struggles. Growing up in a violent household can lead to difficulties in forming stable relationships in adulthood. These emotional scars are not just

memories; they are deep-seated challenges that influence one’s ability to trust and build healthy connections with others.

Trauma, by definition, is something that overwhelms the mind and body, making it difficult to cope with the emotional fallout. Victims of abuse, soldiers, and those who have witnessed violence often try to suppress these painful memories, continuing with their lives as if nothing happened. However, the brain’s survival instincts don’t easily allow for such denial. After a traumatic experience, even the slightest reminder can trigger a cascade of stress hormones and emotional responses. These reactions can be overwhelming, and many survivors fear they are irreparably damaged by their trauma.

The author’s journey into the study of trauma began during their medical training, particularly when they encountered the profound emotional complexities of the human mind. While they had always been fascinated by the body’s physical systems, the brain and its ability to process trauma presented a different kind of challenge. Unlike the straightforward functions of the kidneys or heart, the intricacies of the mind and emotions remain elusive. Early in their psychiatry rotation, the author realized the vast gap in knowledge regarding the psychological origins of trauma, which led them to seek out new fields of research.

Neuroscience, developmental psychopathology, and interpersonal neurobiology are three disciplines that have revolutionized our understanding of trauma. These fields explore how trauma physically alters the brain, changes brain chemistry, and impacts the body's response to perceived threats. One key discovery is that trauma recalibrates the brain’s alarm system, making it hypervigilant and overly sensitive to danger. This heightened state of alertness can prevent survivors from engaging in everyday life, as their brains are constantly on edge. Trauma also hinders one’s ability to learn from experiences, leading to repetitive destructive behaviors. These findings challenge the misconception that trauma victims are simply weak-willed or morally flawed.

As the understanding of trauma has deepened, new methods for healing have emerged. These treatments focus on harnessing the brain's natural ability to change, a process known as neuroplasticity. There are three primary approaches to healing: top-down, through conversation and connection with others; bottom-up, through physical experiences that counteract the helplessness or rage caused by trauma; and the use of medications to regulate the brain’s stress responses. Each individual responds differently, and a combination of these methods is often most effective. The ability to tailor treatment plans to the individual needs of trauma survivors has become a key aspect of modern therapeutic practices.

For over three decades, the author and their colleagues at the Trauma Center have worked to address the complexities of trauma. The center has treated thousands of individuals, including survivors of child abuse, war, accidents, and human trafficking. This work has revealed the deep and lasting effects of trauma on both children and adults, as well as the importance of creating safe spaces for survivors to process their experiences. The collaborative approach at the center, which involves detailed discussions about each patient’s needs, ensures that all aspects of trauma are addressed, providing hope for recovery and healing.

The fight against the lasting effects of trauma is ongoing, but the progress made in understanding and treating it offers new hope for those suffering in silence. Through continued research and practice, trauma survivors can find the tools they need to reclaim their lives, heal their emotional wounds, and build a future free from the weight of their past.

# Chapter 1: Lessons from Vietnam Veterans

Chapter 1: *Lessons from Vietnam Veterans*. In the late 1970s, the author began their work as a psychiatrist at the Boston Veterans Administration Clinic, encountering a patient named Tom, a Vietnam War veteran. Tom's story unfolded over the course of his sessions, revealing a man deeply scarred by his experiences in Vietnam. He had joined the Marine Corps out of duty and idealism, rising quickly to the role of platoon leader. After surviving a harrowing experience during the war, where he witnessed the deaths and injuries of his platoon members, Tom returned to civilian life, hoping to leave the past behind. However, his attempts to integrate back into society were unsuccessful. His nights were plagued by flashbacks and nightmares, which were triggered by the sounds and experiences that reminded him of Vietnam. His behavior became erratic, and he often found solace in alcohol or reckless motorcycle rides, as he struggled to manage the overwhelming memories of war.

Tom's response to his trauma was not unique. As the author listened to Tom's story, memories from his own childhood emerged, evoking reflections on how war and trauma left marks on generations. The author had grown up in postwar Holland, where the effects of wartime experiences had profoundly shaped their family. Like Tom, both the author's father and uncle had been affected by the trauma they experienced during war. The rage and emotional numbness that characterized their behaviors mirrored Tom's struggles, revealing a pattern of unresolved trauma that spanned generations. As the author learned more about Tom's condition, it became clear that the psychological scars of war were not just about the memories of specific events but were deeply rooted in the very fabric of one's identity. This realization would shape the author’s understanding of trauma and its long-lasting effects.

While Tom was not the author’s first encounter with trauma, his case illustrated the complexity of post-traumatic stress disorder (PTSD). In medical school, the author had

been taught to approach trauma primarily as a psychological issue, but Tom’s experience revealed how trauma could physically alter a person’s ability to function. The memories of war were so ingrained in Tom’s psyche that they dictated his actions, rendering him unable to escape the trauma. The author’s early psychiatric training focused on symptoms and diagnoses, often treating the surface issues without delving into the root causes. However, Tom’s case challenged this conventional approach and led the author to reconsider the role of trauma in the mental health field. Over time, the understanding of PTSD would evolve, becoming a focal point in trauma research, and the author would continue to learn from veterans like Tom, as well as other patients suffering from emotional and physical scars.

Through Tom's story, the author discovered the deep connection between trauma and the body, an insight that would later contribute to their work in understanding PTSD. This connection highlights how the body holds onto past pain and distress, often manifesting in physical symptoms. The trauma that Tom experienced, like that of many veterans and victims of abuse, was not confined to the mind but seeped into every aspect of his being. As Tom sought ways to cope with his pain, he found it difficult to express the emotions that he had buried, which led to increased isolation and self-destructive behaviors. This is a common response to trauma, where individuals disconnect from their emotions in order to survive the overwhelming experiences. The challenge, therefore, was not just to address the psychological symptoms but also to help these individuals reconnect with their emotions and rebuild a sense of safety and control in their lives. In recent years, studies have shown that trauma can affect the brain's neurochemical balance, particularly in areas related to fear and memory. Understanding this has led to a more holistic approach in treating PTSD, combining therapy, medication, and new trauma-informed care practices.

As PTSD awareness grew, it became clear that trauma impacts more than just soldiers returning from war. The same patterns were seen in survivors of domestic violence, childhood abuse, and other traumatic experiences. The traumatic effects of war, abuse, and violence shape how individuals perceive the world, often causing them to view every situation through the lens of past trauma. The development of PTSD is

linked to changes in brain activity, particularly in the amygdala, which processes emotional responses to perceived threats. This insight has led to the understanding that trauma rewires the brain’s response to danger, making it harder for individuals to regulate their emotions and reactions. For many, recovery requires not just the removal of symptoms but a complete reorganization of their perceptions and sense of self. New therapies have emerged that focus on helping individuals process these traumatic memories in a way that allows them to regain control over their lives. The road to healing from trauma is often long and complicated, but with the right support and treatment, individuals can begin to reclaim their sense of self and move forward from the past.

# Chapter 2: Revolutions in Understanding Mind and Brain

Chapter 2: *Revolutions in Understanding Mind and Brain.* In the late 1960s, during a year off from medical school, the author had an eye-opening experience at the Massachusetts Mental Health Center (MMHC), a prestigious psychiatric hospital. The hospital had long been regarded as one of the finest in the country, and it was here that the author was introduced to the rapidly changing landscape of psychiatric care. The prevailing treatment for mental illness at MMHC was psychotherapy, stemming from Freudian psychoanalysis, but a new wave of treatments was emerging. The discovery of chlorpromazine, a drug that had a calming effect on patients diagnosed with schizophrenia, was one of the first breakthroughs in the use of medication for mental disorders. This medication, branded as Thorazine, inspired hope that pharmacological solutions could be found for more severe conditions, such as depression, panic attacks, and mania. The success of Thorazine paved the way for further advancements in drug-based treatments, which were believed to be able to ease the most troubling symptoms of schizophrenia and beyond.

While the author’s role as an attendant was focused on organizing recreational activities for patients, they were exposed to the profound impact of mental illness firsthand. Patients at MMHC, many of whom were young adults, were grappling with emotional turmoil and struggling with delusions, self-harm, and intense feelings of fear. Some of them had attempted suicide, while others displayed signs of aggression or self-destructive behavior. The author spent a great deal of time interacting with these patients and listening to their stories. At night, when the hospital was quieter, patients would often confide in the author, sharing painful memories of abuse, assault, and trauma, much of it stemming from their families or close relationships. These stories were rarely mentioned during the daily medical rounds, where the focus

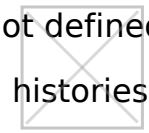
remained primarily on the symptoms rather than their potential origins in past experiences.

As the years went on, the author began to realize the deeper issues affecting these patients and questioned the medical model that treated their symptoms in isolation. They observed that patients often felt trapped in cycles of trauma, unable to break free from the emotional scars of their past. These insights were later reinforced by research showing that more than half of people seeking psychiatric care had experienced some form of childhood trauma, such as sexual abuse, neglect, or violence. Despite this, the trauma itself was rarely discussed in the context of treatment. Instead, doctors focused on managing symptoms and alleviating distressing behaviors, while the root causes were left unexplored. The lack of focus on trauma highlighted a major flaw in the mental health system, one that would take years to address.

The medical community’s approach to mental illness began to shift in the following decades, with an increasing emphasis on pharmacological treatments. The introduction of antidepressants and antipsychotics brought hope to patients who had previously been marginalized by the medical community. For many individuals, medications like Prozac offered relief from debilitating symptoms, such as depression and anxiety, that had interfered with their ability to function in daily life. These drugs became an essential part of the treatment toolkit, offering patients a sense of stability and a chance to regain control over their emotional well-being. However, the rise of pharmacological treatments also raised questions about the role of therapy and the importance of addressing underlying emotional issues. While medications could help manage symptoms, they did not necessarily address the trauma or unresolved emotional conflicts that were often at the core of mental suffering.

Today, the field of psychiatry continues to evolve, with a growing recognition that mental health is influenced by a complex interplay of biological, psychological, and social factors. Advances in neuroscience have shown that medications can play a significant role in managing mental health symptoms, but they are not a one-size-fits-

all solution. Trauma-informed care, which considers the impact of past experiences on an individual’s mental health, is now recognized as a vital component of effective treatment. Mental health professionals are increasingly focusing on understanding the emotional and psychological factors that contribute to mental illness, rather than simply treating the symptoms. This shift in perspective is helping to create more holistic and compassionate approaches to mental health care, recognizing that individuals are not defined by their diagnoses but are shaped by their unique experiences and histories.



# Chapter 3: Looking into the Brain: The Neuroscience Revolution

Chapter 3: *Looking into the Brain: The Neuroscience Revolution.* In the early 1990s, the introduction of novel brain-imaging technologies marked a significant shift in neuroscience, allowing researchers to observe the brain in ways that were previously unimaginable. Techniques such as Positron Emission Tomography (PET) and functional Magnetic Resonance Imaging (fMRI) allowed scientists to visualize how the brain reacts when engaged in specific tasks or recalling memories. These advancements provided groundbreaking insights into the brain’s role in processing emotions, sensations, and memories, allowing scientists to essentially "see" the brain at work. Prior to these innovations, researchers could only speculate about the brain's function, relying on indirect methods like measuring brain chemicals. These images revealed that the brain is much more dynamic and complex than previously thought, particularly in understanding trauma and how it affects the brain long after the event has passed.

This shift in neuroscience led to new research exploring how traumatic memories are stored and re-experienced. Researchers began investigating the effects of trauma on the brain, using these new imaging technologies to study the brains of individuals who experienced flashbacks or relived past traumatic events. For example, a study involving trauma survivors used neuroimaging to recreate specific moments of their traumatic experiences. These individuals were asked to relive certain traumatic scenes while lying in an fMRI scanner. The results were striking, showing that just hearing a traumatic memory could trigger intense physiological responses such as increased heart rate and blood pressure. This finding highlighted how deeply the body and brain are connected and how trauma can re-engage the brain's stress response mechanisms, even many years after the event.

The results of this research have profound implications for understanding trauma. The scans showed clear activation in the brain's limbic system, specifically the amygdala, which is responsible for processing fear and other intense emotions. This region became highly active whenever trauma survivors recalled their experiences, even when those events happened years ago. This finding reinforced the concept that trauma is not just a psychological experience but a deeply physiological one, affecting both the body and the mind. Furthermore, the scans revealed another unexpected discovery: a decrease in activity in Broca’s area, a region of the brain responsible for speech. This deactivation was significant because it suggested that trauma victims often struggle to articulate their experiences, as their brains literally "shut down" the areas involved in speech and language. This neurological evidence helps explain why trauma survivors often find it so difficult to talk about their experiences, even when they want to.

This breakthrough in neuroimaging also pointed to the complex relationship between the two hemispheres of the brain. Researchers found that during flashbacks, the right hemisphere became more active, while the left hemisphere, which is involved in language processing and logical thinking, showed decreased activity. The right brain, known for processing emotional and visual information, seemed to take over when traumatic memories were triggered. In contrast, the left brain, which helps organize experiences and put them into words, became less active. This shift highlights why trauma can make it difficult for individuals to make sense of their experiences logically and communicate them effectively. Understanding this dynamic between the brain's two hemispheres is crucial for developing effective trauma treatments that address both emotional and cognitive aspects of recovery.

The impact of trauma on the brain is not only psychological but also physical. When individuals are exposed to traumatic events, their brain’s stress response system, including the release of adrenaline and other stress hormones, is activated. This response prepares the body for "fight or flight" but can become problematic if the stress response is triggered repeatedly, as is often the case in individuals with PTSD.

Over time, the constant release of stress hormones can lead to a variety of physical symptoms, including sleep disturbances, digestive issues, and chronic pain. This ongoing physiological strain is a key factor in the long-term health problems faced by trauma survivors. Therefore, addressing trauma requires not only psychological interventions but also physical treatments that help regulate the body's stress response.



As we move forward in the understanding of trauma, it’s clear that the brain’s response to stress and fear is deeply ingrained in our biological systems. The discoveries made through neuroimaging have opened up new possibilities for treatment, showing that trauma is not just something that resides in the mind but affects the entire body. Addressing both the psychological and physical aspects of trauma is essential for recovery. In the future, trauma treatments may involve a combination of therapies that target both the brain’s emotional centers and the body’s stress responses. This integrated approach holds promise for helping individuals heal from the deep scars left by traumatic experiences, offering a path toward recovery that recognizes the full complexity of the human brain and body.

# Chapter 4: Running for Your Life: The Anatomy of Survival

Chapter 4: *Running for Your Life: The Anatomy of Survival*. Survival is the core function of the human brain, and understanding the mechanisms behind how it protects us during times of danger is vital to understanding trauma. The brain operates with intricate systems designed to ensure our protection in life-threatening situations, triggering automatic responses that prioritize safety. From the moment danger is sensed, the brain activates a series of responses to help us react appropriately, often before we can consciously process the threat. This primitive survival mechanism, known as the "fight or flight" response, is part of the brain’s limbic system, responsible for processing emotions and bodily sensations related to danger. As soon as the immediate threat dissipates, the body aims to regain balance, but in instances of trauma, the usual recovery process can be disturbed, leading to long-lasting psychological and physical consequences. The complexity of how our brains interpret and react to trauma is essential in comprehending why some people experience difficulties in recovering from traumatic events.

When trauma occurs, it can rewire the brain’s approach to future encounters with danger or stress. The body often remains in a heightened state of alertness long after the immediate threat is gone, which is characteristic of PTSD. Individuals with PTSD may continue to experience heightened emotional reactions and physical responses such as rapid heartbeat, shallow breathing, and muscle tension, as though the trauma is still occurring. This is not just a mental experience but a profound physical reaction that affects the entire organism. As the brain struggles to protect the individual from future harm, it can impair the ability to focus on the present, causing sufferers to feel disconnected or overly anxious. This constant state of vigilance can be exhausting, preventing individuals from fully engaging in their day-to-day lives, and affecting their

ability to establish trust or engage in meaningful relationships.

One of the most crucial aspects of trauma recovery is the rebalancing of the emotional and rational functions of the brain. The emotional brain, particularly the limbic system, tends to react instinctively and immediately, often leading to overwhelming feelings of fear, anger, or sadness. In contrast, the rational brain, housed in the prefrontal cortex, has the ability to assess situations more logically and can help regulate emotional responses. Unfortunately, trauma can impair the proper functioning of the prefrontal cortex, making it difficult for individuals to think clearly or calmly in the face of stress. This disconnection between the emotional and rational parts of the brain is why trauma survivors often struggle with overwhelming emotional reactions to situations that others might not find threatening. Therapy, mindfulness practices, and grounding techniques can help re-engage the prefrontal cortex, allowing trauma survivors to regain some control over their emotional states and begin to feel safe again.

A significant but often overlooked aspect of trauma recovery is how it manifests physically within the body. Many trauma survivors experience chronic pain, digestive problems, and other health issues, all of which stem from the body’s attempt to cope with the stress response. These physical symptoms are a direct result of the brain’s dysregulation of the autonomic nervous system, which controls automatic bodily functions like breathing and heart rate. When the body is stuck in a state of high alert, these systems can become disrupted, leading to ongoing discomfort and illness. Some individuals may also become disconnected from their physical sensations as a defense mechanism against overwhelming emotions, either numbing themselves or becoming hyper-aware of every sensation. Healing trauma often requires re-establishing a connection between the mind and body, allowing individuals to reawaken their bodily awareness in a safe and controlled manner. Techniques such as yoga, breathwork, massage, or even simply becoming more mindful of one's own body can help facilitate this reconnection, allowing the survivor to begin the journey toward holistic healing.

It is essential to recognize the profound link between body and mind when addressing trauma. Physical symptoms are not just secondary to the emotional experience of

trauma; they are a direct result of the body’s physiological reaction to stress and danger. For those dealing with the aftermath of trauma, the physical body becomes an expression of the unresolved emotional turmoil within. Through practices that bring attention back to the body, such as movement therapy, breath control, and physical touch, individuals can start to release stored tension and trauma held in the body. These practices offer a way to balance the nervous system, reset the body’s stress responses, and help individuals re-establish a sense of control over their lives. By attending to both the emotional and physical aspects of trauma, a more integrated healing process can occur, offering hope for those who have long struggled with the lingering effects of trauma. The road to recovery requires patience and effort, but it can lead to profound transformation, both emotionally and physically.

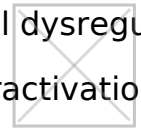
# Chapter 5: Body-Brain Connections

Chapter 5: *Body-Brain Connections*, the intricate relationship between the body and mind has been a subject of scientific study for centuries. Early thinkers like Charles Darwin recognized that emotional expressions were not just mental states but were deeply intertwined with our physical selves. This concept is still valid today, as we understand more about how our bodies react to emotional stimuli and how these reactions shape our overall mental health. Darwin's observations in *The Expression of the Emotions in Man and Animals* provided the foundation for understanding the body-brain connection and its critical role in both our survival and emotional well-being.

One of the most fascinating aspects of Darwin's work is his exploration of how emotions drive behavior and communicate intention. For example, physical expressions such as anger or fear are universally recognized by others, even across species. This instinctual ability to read the emotions of others—whether through body posture, facial expressions, or tone of voice—plays a significant role in how we navigate our social world. When our bodies are under emotional stress, they send signals that, if ignored or not properly managed, can lead to chronic health problems or behavioral issues.

Emotions, from Darwin's perspective, are not just abstract psychological states but essential motivators for action. They initiate the necessary physical responses to threats or opportunities, preparing the body to act. However, when these emotional responses become prolonged, as seen in conditions like PTSD, they can hinder the body's ability to return to a state of balance. Constantly being on high alert, without the ability to shift into a more relaxed state, can lead to burnout, disconnection, and a loss of the ability to form meaningful relationships.

From a modern standpoint, we now know that the body and brain are in constant communication through the autonomic nervous system (ANS). This system is divided into the sympathetic nervous system (SNS), which activates the "fight or flight" response, and the parasympathetic nervous system (PNS), which promotes "rest and digest." Both systems must work in harmony to maintain emotional and physical health. When this balance is disrupted, either through trauma or chronic stress, it can lead to emotional dysregulation, anxiety, or depression, as the body becomes trapped in a state of overactivation.



The key to healing from emotional trauma lies in restoring the balance between these two systems. Techniques such as deep breathing, yoga, and mindfulness are proven to engage the parasympathetic nervous system, helping to calm the body and mind. This focus on the body’s natural ability to regulate itself is central to contemporary trauma therapy. By engaging the body in a process of mindful awareness, individuals can begin to reconnect with their inner sensations and emotions, helping them to heal from the inside out.

New advancements in neuroscience, particularly the Polyvagal Theory developed by Stephen Porges, have further deepened our understanding of how social connections affect the body’s ability to regulate stress. According to this theory, the vagus nerve, which plays a central role in the parasympathetic nervous system, is also responsible for social engagement behaviors such as facial expressions and vocalizations. The more attuned we are to the social cues around us, the better our bodies can regulate stress responses. Positive social interactions, such as being heard and seen by others, help to activate the body's calming mechanisms, promoting a sense of safety and emotional balance.

The importance of social connection cannot be overstated. Research has shown that social support acts as a buffer against the effects of trauma, promoting resilience and emotional recovery. The presence of a trusted person can help to reset the body’s stress response, providing the necessary safety for emotional healing. This is why therapy often incorporates group work or bonding exercises to help individuals

reconnect with others in a safe and supportive environment.

As we continue to explore the connections between the mind and body, it becomes clear that healing from trauma requires more than just cognitive interventions. The body must be engaged in the healing process through physical awareness, breathwork, and emotional attunement. Only by addressing both the mind and body can individuals truly recover from the effects of trauma and restore balance to their lives. This integrated approach holds the potential to transform how we understand and treat emotional distress, paving the way for more effective and holistic treatments.

Understanding how trauma impacts our nervous system and emotional regulation allows us to develop more nuanced and compassionate approaches to healing. Whether through therapy, physical exercises, or social connections, it is clear that the body holds the key to emotional recovery. As we continue to learn more about the body-brain connection, we can help individuals unlock the power of their own bodies to heal and thrive.

# Chapter 6: Losing Your Body, Losing Your Self

Chapter 6: *Losing Your Body, Losing Your Self*, the journey of healing often begins with learning to live with the questions themselves, as Rainer Maria Rilke beautifully expressed in his letters to a young poet. Just as with the challenges in our emotional and psychological states, the answers to our struggles may come slowly, without our direct awareness. Instead, we might find our way toward understanding through the simple act of living with the discomfort of the questions.

Sherry walked into my office, her body language speaking volumes before she even uttered a word. Her slumped posture, with her chin almost touching her chest, told me that she was hiding from the world in more ways than one. When she began to speak, her voice was flat and monotone, revealing a deep emotional numbness that had taken root over the years.

Sherry’s story was one of neglect and deep emotional scars that had been left unaddressed. Growing up in a foster home where she was surrounded by other children in need of care, Sherry had always felt like an outsider in her own family. She shared memories of her mother telling her that she didn’t belong, that she was the "wrong baby," a comment that, though possibly meant as a joke, was laden with unspoken pain. This neglect wasn’t just emotional—it affected her sense of self and place in the world, a painful reality that would continue to shape her well into adulthood.

The trauma of her childhood wasn’t the only burden Sherry carried. Her adult life was marked by isolation, devoid of close relationships, and filled with painful reminders of her past. She described a terrifying incident in Florida during a college vacation where she was abducted, held captive, and assaulted for days. Despite the horrifying nature of her experience, her mother, who she had turned to for help, rejected her plea for

assistance, leaving Sherry with a profound sense of abandonment.

As Sherry's therapist, I came to realize that her struggles were not just psychological but deeply somatic. She exhibited behaviors like skin picking as a way to feel something, to regain a sense of control over her body when everything else felt out of her reach. This compulsive behavior, although harmful, wasn’t an attempt at self-harm but rather an attempt to feel alive when everything else felt numb and distant.



Over time, I began to understand the connection between trauma and the disconnection from the body. For many people with histories of trauma, physical sensations become a foreign territory, disconnected from the mind. This disconnection isn’t just a psychological issue but a somatic one, where the body’s internal sensors fail to engage, leaving individuals feeling detached from themselves and their surroundings.

Research has shown that trauma, especially when experienced at a young age, affects how we process sensory information. Studies on individuals with PTSD reveal that their brains struggle to integrate sensory inputs, which are vital for developing a coherent sense of self. When this connection is disrupted, it becomes nearly impossible to feel in tune with one’s body, leading to further emotional and physical issues.

Trauma affects our sense of "self" by interfering with the brain’s ability to register bodily sensations, which are critical for our emotional well-being. Without this sensory feedback, individuals may feel as though they are disconnected from their own body, leading to feelings of being "invisible" or "unreal." This phenomenon is seen not only in Sherry but in many others with a history of neglect and abuse, where the lack of connection to their body becomes a core part of their suffering.

One of the most effective therapeutic interventions for these patients involves helping them reconnect with their body. This process, known as somatic therapy, focuses on bringing awareness to bodily sensations and re-establishing the connection between the mind and body. As these individuals begin to feel more grounded in their physical experience, their emotional well-being often improves, as Sherry's case showed when

she began massage therapy and became more open and engaged in her life.

The journey to healing requires acknowledging the body as a vital part of the self, as it holds the key to understanding and processing our emotions. Learning to listen to our body’s signals is an essential step in overcoming trauma and regaining a sense of agency. When we are in tune with our physical sensations, we can begin to trust ourselves again and rebuild a sense of safety and control.



As we learn to interpret the signals our bodies give us, we gain a better understanding of how to care for ourselves and our emotional needs. This reconnection also helps individuals with trauma to navigate the world more confidently, without the constant fear of being overwhelmed by their internal state. The ability to recognize and manage our emotional and physical responses is crucial for long-term healing, and with the right therapeutic support, it is entirely possible to reclaim our sense of self from the grip of trauma.

# Chapter 7: Getting on the Same Wavelength: Attachment and Attunement

Chapter 7 explores the critical role of attachment in shaping a child's emotional and psychological development. The research conducted at the Massachusetts Mental Health Center focused on children who had experienced severe neglect and abuse. These children, although exhibiting various disruptive behaviors, such as aggression, emotional numbness, and withdrawal, were also deeply in need of affection. The behavioral patterns observed in the clinic revealed how trauma had altered their ability to form healthy emotional bonds. Through a specialized set of test cards designed for children, researchers noted how children who had been exposed to traumatic events viewed seemingly ordinary situations as potential threats. Their responses to basic, benign images were colored by a deep sense of danger and aggression, which revealed the intense impact of trauma on their worldviews.

The findings of this study highlighted that children exposed to trauma developed a unique and distressing interpretation of the world around them. For example, in response to a card depicting a family scene, children who had been abused imagined violent and gruesome scenarios, while children without such experiences envisioned peaceful, optimistic endings. This stark contrast illustrated how trauma can alter a child’s perception of normality, turning even the most innocuous situations into triggers for fear and aggression. These responses were not mere overreactions; they reflected the children’s internalized feelings of insecurity and fear, which stemmed from their painful pasts. The inability of these children to imagine peaceful or positive outcomes from everyday scenes demonstrated how profoundly trauma had shaped their emotional and psychological frameworks. Moreover, it underscored the importance of a stable, safe environment in helping children rebuild a sense of trust and security.

Attachment theory, developed by John Bowlby and later expanded by Donald Winnicott, is key to understanding the emotional development of children. According to Bowlby, children are inherently predisposed to form strong emotional bonds with their primary caregivers, which act as a foundation for future relationships. Secure attachment allows children to feel safe enough to explore their surroundings, learn self-regulation, and develop empathy for others. In contrast, insecure attachment, often a result of neglect or abuse, leaves children emotionally fragmented and unable to trust others. These children may become anxious, avoidant, or develop disorganized attachment patterns, each of which significantly impacts their ability to engage with the world in a healthy, emotionally stable way. The nature of these early attachments has profound effects on the brain, as they shape how children perceive themselves and others, influencing their capacity for emotional regulation and interpersonal relationships throughout their lives.

Therapeutic intervention for children with disorganized attachment is focused on helping them rebuild a sense of emotional safety and stability. These children, having learned to expect fear or rejection from their caregivers, often struggle to regulate their emotions and respond appropriately in social situations. They may experience intense feelings of terror, leading to dissociation, self-harm, or avoidance. Rebuilding trust with a caregiver or therapist is a gradual process that involves fostering emotional attunement. In therapy, this means re-establishing a sense of connection through both verbal and nonverbal communication, enabling these children to experience and process emotions in a safe environment. For example, when a therapist helps a child feel seen, heard, and understood, it can begin to reverse the damage caused by early neglect and trauma. These therapeutic interventions aim not just to help children understand their past but also to enable them to heal through the restoration of a secure emotional base.

Attachment styles, once formed in early childhood, tend to persist into adolescence and adulthood, affecting the way individuals approach relationships and cope with stress. Children who experience secure attachment grow up with a deep sense of

emotional resilience and a greater capacity to handle life's challenges. They are able to trust others, regulate their emotions effectively, and engage in healthy relationships throughout their lives. On the other hand, children with insecure attachment often carry the emotional scars of their early experiences into adulthood. Anxiously attached individuals may constantly seek reassurance from others, while avoidantly attached individuals may struggle with emotional intimacy, preferring to isolate themselves. For these individuals, therapy focuses on helping them understand the root causes of their attachment patterns and developing new, healthier ways of interacting with others.



Understanding the impact of early attachment is not just a theoretical exercise; it has practical implications for therapy and parenting. Secure attachment provides a strong foundation for emotional well-being, while insecure attachment can lead to a variety of emotional and psychological challenges. However, the research also shows that attachment patterns can be modified through therapeutic intervention, as long as individuals are willing to work through their fears and traumas. For children who have experienced abuse, neglect, or other forms of trauma, restoring attachment involves helping them feel safe, valued, and understood. Whether through individual therapy or family therapy, creating an emotionally attuned environment where these children can process their experiences and rebuild trust is essential for their recovery.

This process of healing is particularly vital for individuals with disorganized attachment, who often face the most intense emotional challenges. These children, who have experienced inconsistent or frightening caregiving, may develop a profound sense of confusion about their place in the world. As adults, they may struggle with emotional regulation, impulse control, and the ability to form healthy relationships. Therapeutic interventions for disorganized attachment focus on creating a safe space where individuals can express their emotions, confront their fears, and develop new ways of relating to others. By addressing both the emotional and physiological aspects of trauma, these interventions aim to help individuals reconnect with themselves and others in a meaningful and healthy way. Through this process, individuals can begin to rewrite their internal maps, building more secure and fulfilling relationships as they move forward.

# Chapter 8: Trapped in Relationships: The Cost of Abuse and Neglect

Chapter 8 dives deeply into the challenges faced by survivors of abuse and neglect, particularly through the lens of Marilyn's experience. She was a woman who, despite her professional success and outward composure, found herself ensnared in cycles of terror and numbness. Marilyn’s story sheds light on how childhood trauma can manifest in adult life, leading to overwhelming feelings of alienation, rage, and self-destructive behavior. These emotional scars often go unnoticed, even by the individuals themselves, until they seek help. Therapy, in such cases, is a slow but necessary process, allowing the person to reconnect with their emotions and their history in order to heal.

Marilyn’s reaction to intimacy was rooted in past trauma she couldn’t initially remember, reflecting how deeply embedded memories of abuse can resurface in unexpected ways. Her behavior, such as sudden outbursts of violence or dissociation, was a direct manifestation of the unresolved emotional pain she carried with her. As the therapy progressed, it became clear that the body and mind had their own way of remembering and expressing the trauma, even when conscious recollection was absent. Marilyn’s case was not unique; many survivors of abuse develop coping mechanisms that help them survive but leave them disconnected from their own feelings and bodies. They may struggle with feelings of numbness, a lack of agency, or emotional responses that feel disproportionate to the present situation. For such individuals, treatment must begin by creating a safe space for the emotions to surface and be experienced without judgment.

The chapter also highlights the concept of "dissociation," a defense mechanism where a person mentally disconnects from a painful or overwhelming experience. This coping

strategy often leads to a fragmented sense of self, making it difficult for individuals to engage fully in their relationships or sense of identity. As Marilyn worked through her therapy, it became evident that reclaiming a sense of safety in her body and mind was essential for recovery. Her body, which had been attuned to danger and survival, needed to relearn what it felt like to be safe. Therapy focused on teaching Marilyn techniques to manage her emotions and slowly dismantle the walls she had built around her vulnerability. It wasn't about forcing her to remember everything all at once, but about gently guiding her to process her emotions in a way that allowed her to regain control over her life.

In the process of healing, one of the most significant steps is learning to trust again—trust in others, and trust in oneself. Survivors of childhood trauma often feel as if they are trapped in a cycle of mistrust and fear, believing that any form of connection will inevitably lead to harm. Marilyn's struggle was a reflection of this: her inability to trust men or even herself due to the trauma she had endured. Her journey toward healing involved reworking her "inner map" of the world—learning to see herself as worthy of respect and love, and not defined by her past experiences. Slowly, Marilyn began to recognize that her past did not have to dictate her future, and she could start to build healthier relationships and a more positive view of herself.

The concept of "soul murder," as mentioned by psychoanalyst William Niederland, speaks to the deep psychological harm caused by sustained abuse and neglect. Survivors of such trauma often lose track of who they are and what they deserve in life. As Marilyn's story exemplifies, abuse does not just affect the mind—it impacts the body's ability to function, as evidenced by her autoimmune disease that was linked to her unresolved trauma. The body, like the mind, holds onto the effects of past abuse, often manifesting in physical illnesses or conditions. This connection underscores the importance of addressing trauma holistically—both psychologically and physically. Marilyn's healing journey highlighted the critical need for trauma-informed care that acknowledges the deep, lasting effects of abuse and neglect on both the body and the mind.

For readers who are navigating similar experiences, it is important to understand that healing from childhood trauma is possible, though it requires patience, support, and often, professional help. Whether through therapy, self-care practices, or the support of a compassionate community, reclaiming one's sense of safety and self-worth is a gradual process that can lead to profound transformation. Recognizing that trauma affects more than just emotions is key to understanding its full impact on one’s life. It is equally crucial to remember that seeking help is a sign of strength, not weakness. No one should have to face the repercussions of trauma alone.



# Chapter 9: What’s Love Got To Do With It?

Chapter 9 begins by shedding light on the complexities surrounding individuals like Marilyn, Mary, and Kathy, who often receive multiple diagnoses due to a failure to understand the root causes of their struggles. Typically, these individuals might be labeled with disorders such as bipolar disorder, depression, or ADHD, depending on which aspect of their symptoms the healthcare provider focuses on. However, these diagnoses fail to capture the full extent of their experiences, particularly if the underlying issue is unresolved trauma. Psychiatric diagnoses, while useful, often miss the true nature of the patient's suffering, failing to account for the childhood experiences that may have shaped these individuals' emotional and psychological states. The reality of trauma and neglect during childhood shapes a person’s development in ways that cannot be adequately addressed through traditional psychiatric models.

In this chapter, the author discusses the inadequacies of the Diagnostic and Statistical Manual of Mental Disorders (DSM) in diagnosing individuals with histories of trauma. While the DSM has become a crucial tool for mental health professionals, its categories often lack precision, leading to an oversimplification of the patients' conditions. This lack of accuracy in diagnosis can result in improper treatment and a lack of understanding of the patient’s core issues. One critical aspect that is often overlooked is the profound impact of early childhood trauma on a person’s emotional regulation, attachment patterns, and overall well-being. As the chapter highlights, trauma is often a silent and invisible force in people’s lives, with patients frequently unable to articulate their experiences or even recognize how their past shapes their present behaviors.

To better understand the connection between childhood trauma and psychiatric disorders, the author recounts a collaborative study with psychiatrist Judith Herman.

The study focused on patients diagnosed with borderline personality disorder (BPD) who shared a common theme—early trauma, often in the form of neglect or abuse. Through the development of the Traumatic Antecedents Questionnaire (TAQ), the researchers were able to uncover the deep-seated effects of childhood trauma. Many patients reported a lack of safety and affection during childhood, with no one to turn to for emotional support. This revelation further highlighted the gap in understanding trauma and its long-lasting effects. The results were clear: patients with histories of trauma exhibited complex, often contradictory behaviors that could not be fully explained by traditional psychiatric diagnoses.

A pivotal finding of the study was that trauma-related disorders, particularly those stemming from childhood abuse, have a unique set of symptoms that differ from those associated with trauma in adults, such as combat-related PTSD. While PTSD in adults typically involves vivid memories and flashbacks of traumatic events, individuals with complex trauma, especially from early childhood, often don’t have clear memories or may not be preoccupied with their past experiences. Instead, their symptoms are more pervasive, manifesting as emotional dysregulation, chronic self-destructive behavior, and difficulty in forming stable relationships. These individuals are often misdiagnosed with multiple, unrelated disorders, resulting in fragmented care that does not address the core issue: the trauma they have endured and its profound effect on their psychological development.

Through these insights, the study expanded the understanding of how childhood trauma impacts individuals' lives, pushing for a new approach to diagnosing and treating those who have experienced such adversity. The authors argue that traditional diagnoses fail to account for the complexity of trauma’s effects, and thus, new frameworks are needed to address these underlying issues. Understanding trauma's role in shaping emotional and behavioral patterns is essential for creating more effective treatments. This approach emphasizes not just managing symptoms, but addressing the trauma itself in a compassionate and thorough way, which could lead to long-lasting healing and better quality of life for those affected.

The findings also challenge the misconception that trauma only affects a person's mental health, emphasizing the significant physical and emotional toll it can take on the body. Individuals who experience chronic stress and neglect during childhood are at a higher risk of developing lifelong health issues, including heart disease, diabetes, and chronic pain. These findings highlight the necessity of considering the full scope of a person's history when diagnosing and treating mental health disorders. The link between physical health and psychological trauma should no longer be overlooked, and healthcare providers must adopt a holistic approach to treatment, one that integrates both physical and emotional healing.

Furthermore, the study emphasizes the importance of early intervention and support systems for those who have experienced trauma. While some individuals may develop coping mechanisms that help them manage their emotions and navigate life, many others struggle with the long-term effects of their experiences. Early intervention, whether through therapy, social support, or community-based programs, can make a significant difference in preventing the long-term consequences of trauma. These individuals often need more than just psychiatric care—they need comprehensive support that addresses the emotional, social, and physical aspects of their lives. By shifting the focus from symptom management to trauma-informed care, healthcare providers can offer more effective treatment that supports individuals in healing from their past and leading fulfilling lives.

Lastly, this chapter brings attention to the limitations of the current psychiatric system in addressing the needs of individuals with complex trauma histories. While the DSM provides a framework for diagnosing mental health conditions, it fails to offer a comprehensive solution for those who suffer from the aftereffects of childhood trauma. This is where the trauma-informed care approach comes in, offering a more nuanced understanding of how past experiences shape present behaviors and emotions. By acknowledging the role of trauma in the development of mental health issues, practitioners can help individuals rebuild trust, regulate their emotions, and ultimately find healing. This shift in perspective is essential for providing effective care to individuals whose trauma has been largely ignored or misunderstood by traditional

diagnostic frameworks.



# Chapter 10: Developmental Trauma: The Hidden Epidemic

Chapter 10 emphasizes the profound and often hidden impact of developmental trauma, underscoring how adverse childhood experiences shape not only a child's emotional development but also their physiological and psychological growth. These early maltreatments—be they physical, emotional, or neglectful—create lasting scars that affect brain structure and function. The consequences are far-reaching, as these children, unable to process their early-life experiences healthily, struggle with numerous challenges, including behavioral issues, cognitive impairments, and a heightened vulnerability to mental health disorders. While traditional psychiatric frameworks have often failed to recognize the underlying trauma, a growing body of research reveals that early abuse and neglect are key contributors to the development of these disorders, making it imperative for society to address these issues head-on in order to break the destructive cycle of trauma.

The complexities surrounding the diagnosis of trauma in children are further compounded by the fact that many of these children do not fit into typical psychiatric categories. Behaviors that manifest in troubled children—such as withdrawal, aggression, anxiety, and difficulty regulating emotions—are often mistaken for conditions like ADHD, PTSD, or conduct disorders. However, these diagnoses miss the root causes, which lie in unresolved trauma, and instead focus on symptomatic behaviors. As a result, many children are misdiagnosed, leading to treatments that fail to address the emotional and psychological wounds they carry. When children exhibit extreme reactions, they are often labeled with multiple conflicting diagnoses, which leaves them with little hope of receiving the appropriate help needed to heal and overcome their trauma.

In response to this, recent advancements in neuroscience and psychological research have shed light on how early traumatic experiences can permanently alter the brain's wiring. For example, studies in epigenetics have shown that traumatic experiences, such as neglect and abuse, can change the way genes are expressed, leading to alterations in the brain's stress response systems. One of the most influential studies in this field was conducted by Michael Meaney, who studied the effects of maternal care in rats. His research found that rats raised by attentive mothers had healthier stress response systems, which helped them recover from stress more quickly. In contrast, those raised by neglectful mothers exhibited high levels of stress hormones and struggled to regulate their emotions. This same mechanism is observed in humans, where children raised in abusive or neglectful environments often face lifelong challenges in managing stress and emotional regulation. These findings suggest that nurturing, supportive relationships during early childhood are essential for the healthy development of the brain.

Furthermore, the environment in which a child grows up plays an equally crucial role in determining their emotional and behavioral development. Research by Stephen Suomi on rhesus monkeys, who share a significant portion of their DNA with humans, demonstrates how early social environments can profoundly shape behavior. The study found that monkeys raised in stable and supportive social groups developed healthier coping mechanisms, while those raised in isolation or in stressful conditions exhibited heightened aggression and anxiety. Similarly, human children who grow up in secure, loving environments are more likely to develop emotional resilience and healthy interpersonal relationships. However, children exposed to neglect or abuse often develop maladaptive behaviors, such as aggression or emotional numbness, due to a lack of positive social support and guidance. This highlights the importance of providing not just safe homes but also enriching environments that foster healthy emotional and social development.

To mitigate the long-term effects of developmental trauma, it is essential to recognize the critical role that early caregiving plays in a child's development. The importance of

providing consistent, sensitive, and nurturing care cannot be overstated, as it directly impacts a child's ability to regulate their emotions and develop secure attachments. Studies, including the Minnesota Longitudinal Study of Risk and Adaptation, have shown that children who experience inconsistent or neglectful caregiving are more likely to face difficulties with emotional regulation, leading to a higher risk of developing mental health disorders later in life. The study's findings reinforce the idea that the early years are formative in shaping a child's emotional and cognitive abilities, and that disruptions in caregiving during this period can have lasting effects. The key takeaway is that early intervention and support for both children and caregivers are vital to reducing the impact of trauma and ensuring better outcomes for at-risk children.

Recent research on childhood trauma has also introduced the concept of Developmental Trauma Disorder (DTD), which seeks to address the specific needs of children who have experienced chronic and ongoing trauma. The need for a formal diagnosis of DTD has been emphasized by experts in the field, as it would help to create a more accurate understanding of the symptoms and long-term effects of developmental trauma. Unlike traditional diagnostic labels that focus solely on behavioral symptoms, DTD aims to recognize the full range of emotional, cognitive, and physiological impacts of trauma. These children often experience a constant state of dysregulation, with difficulties in attention, emotional control, and interpersonal relationships. By providing a clear and comprehensive diagnosis, clinicians can better address the underlying causes of these symptoms and offer more effective treatments tailored to the unique needs of traumatized children.

Additionally, the establishment of the National Child Traumatic Stress Network (NCTSN) has been a pivotal step in raising awareness and improving the treatment of childhood trauma across the United States. The NCTSN, which began with a small group of experts in 2001, has since expanded to over 150 centers nationwide, providing a platform for the collaboration of mental health professionals, educators, and social workers. Through this network, thousands of children have received more

accurate diagnoses and targeted interventions, leading to better outcomes and improved quality of life. The NCTSN's work highlights the importance of addressing trauma early on and providing a comprehensive approach to treatment that encompasses emotional, psychological, and social support. As the network continues to grow and evolve, it offers hope for a future in which children who have experienced trauma are given the tools they need to heal and thrive.

In conclusion, developmental trauma is a pressing issue that requires urgent attention and action. Through research and the efforts of organizations like the NCTSN, we are beginning to understand the profound effects of early trauma on a child's brain and behavior. However, much work remains to be done in providing accurate diagnoses, effective treatments, and long-term support for these children. By focusing on the root causes of their struggles—chronic trauma and disrupted attachment—we can begin to break the cycle of violence and neglect, ensuring that future generations have the opportunity to lead healthy, fulfilling lives. With continued investment in research and intervention programs, we can begin to address this hidden epidemic and make a meaningful difference in the lives of children who need it most.

# Chapter 11: Uncovering Secrets: The Problem of Traumatic Memory

Chapter 11 explores the complexities of traumatic memory, using the case of Julian, a man who had repressed memories of being sexually abused by a Catholic priest, as a pivotal example. The story is a powerful illustration of how trauma can lie dormant for years, only to resurface unexpectedly, often triggered by a single event or memory. Julian’s experience, marked by vivid images and overwhelming emotions, reflects the fractured nature of traumatic memory, where the mind struggles to process and integrate the events fully. The delayed recall of traumatic events, coupled with intense physical reactions, exemplifies how the body and mind can become trapped in a loop of distress that is difficult to break.

The understanding of traumatic memory, especially in cases like Julian's, has been crucial in shaping how mental health professionals approach therapy for trauma survivors. Trauma is not simply about forgetting—it is often about dissociation, where memories are not integrated into the person's life narrative. As seen in Julian’s case, these memories are often fragmented and vivid, with the traumatic experience replaying itself through sensory details and emotional responses rather than coherent recollections. This phenomenon is not unique to Julian but is shared by many individuals with PTSD, whose trauma remains trapped in the body and mind until they can confront and process it fully. Understanding this mechanism is crucial for therapists, as it underscores the need for therapeutic approaches that focus not only on verbalizing the trauma but also on creating a safe environment for the body to release the tension that comes with such distressing memories.

Memory plays a significant role in how individuals process and make sense of their past. The brain's response to trauma is often characterized by the inability to fully

integrate the traumatic event, leaving the memory in a disjointed and fragmented form. This fragmentation is particularly evident in PTSD, where the memory does not fade or become less intense with time as typical memories do. Instead, the trauma remains raw, vivid, and often dissociated from the rest of the person's life experiences. Studies, such as those conducted by pioneers like Janet, have shown that traumatic memories are not simply erased but become embedded in the nervous system, influencing how individuals react to new experiences. Integrating these fragmented memories into a coherent narrative is key to healing, as it allows individuals to recognize that the trauma is part of their past, not their present.

Furthermore, modern therapeutic practices have evolved significantly in addressing these deeply ingrained memories. Techniques like Cognitive Behavioral Therapy (CBT) and Exposure Therapy help individuals gradually confront their trauma in a safe and controlled way, enabling them to reprocess their memories and reduce their power over daily life. These therapies are not designed to erase the trauma but to allow the individual to regain control over how the memory is experienced. Through these methods, patients can work toward integrating their traumatic memories into their broader life story, reducing the emotional distress that accompanies them. This process is crucial for helping trauma survivors reclaim their lives, move forward, and ultimately heal from the invisible scars of their past.

Understanding trauma as a complex and multifaceted experience is essential for both clinicians and survivors. Trauma is not just about what happens in the moment; it is about how the mind and body react, store, and attempt to make sense of those events in the long term. As research and therapeutic techniques continue to evolve, it is clear that memory is not a passive storehouse of events but an active, dynamic process that is deeply influenced by emotional experiences. By addressing both the psychological and physiological impacts of trauma, therapy can help individuals break free from the grip of their past, fostering healing and growth. This holistic approach is key to supporting trauma survivors and empowering them to live fuller, more integrated lives.

# Chapter 12: The Unbearable Heaviness of Remembering

Chapter 12 delves into the profound and complex nature of trauma and its enduring effects on the mind and body. The historical perspective on trauma has evolved over the centuries, with medical and psychological communities initially reluctant to acknowledge the depth of its impact. Not until the horrors of World War I forced the issue into the limelight did society begin to confront the long-lasting physical and psychological effects of trauma, often termed "shell shock" at the time. Despite this, the stigma surrounding mental health and the lack of proper understanding led to various dismissals and a lack of recognition for many soldiers suffering from these symptoms. The psychological scars left by the trauma of war extended far beyond the battlefield, with many veterans' struggles being ignored or misinterpreted by both medical professionals and society at large.

The treatment of trauma has progressed significantly over the years, but misconceptions and challenges continue to plague recovery. For instance, the concept of repressed memory—where individuals forget traumatic events only to recall them years later—has been both a source of controversy and a key area of study. Repressed memories, while contested in some circles, are supported by extensive research and clinical evidence showing that trauma can sometimes be suppressed in the mind only to resurface when the individual is ready or capable of confronting it. This phenomenon is not exclusive to wartime experiences but spans a range of traumatic events, including childhood abuse, natural disasters, and violent assaults. Understanding how trauma can be suppressed and later recalled helps clinicians address the complexities of trauma recovery, though the science of repressed memory continues to be debated.

For those who have experienced trauma, the journey to recovery is often filled with setbacks, confusion, and ongoing challenges. In many cases, traumatic memories are fragmented, coming back not as coherent stories but as disjointed images, sensations, and emotional reactions that the individual may not fully understand. The disorganization of traumatic memories is a hallmark of how the mind processes intense stress, and while these memories may fade or become more integrated over time, they never completely disappear. Therapy aimed at helping individuals reconstruct these memories into a coherent narrative has shown to be beneficial for many trauma survivors, yet it is not without its own set of complications. As research continues to explore the intricacies of trauma and memory, it becomes increasingly clear that the path to healing requires both patience and compassion, as each individual’s journey is unique.

Trauma not only affects the mind but also profoundly impacts the body. When a traumatic event occurs, the body often stores the emotional and physical responses, which can lead to long-term physical symptoms such as chronic pain, gastrointestinal problems, and even autoimmune conditions. These physical manifestations of trauma are not simply "in the mind" but are deeply rooted in the body's response to stress. Healing, therefore, involves not only addressing the psychological aspects of trauma but also recognizing the need for physical recovery, which might include techniques such as somatic therapy, physical therapy, and mindfulness-based practices. By treating the whole person—mind, body, and spirit—individuals can work toward full recovery, breaking free from the grip of past trauma and finding a way to live fully in the present.

In conclusion, trauma is a multifaceted experience that leaves lasting scars on both the psyche and the body. As we continue to expand our understanding of trauma, its effects, and the complex nature of memory, it is crucial to approach healing with a holistic mindset. The recovery process is not linear, nor is it without its challenges, but with the right support, therapies, and a deeper understanding of the trauma experienced, individuals can begin to reclaim their lives. Healing from trauma is about more than just surviving—it is about thriving, integrating painful memories into one’s

life story, and reclaiming the strength that has always been within.



# Chapter 13: Healing from Trauma: Owning Your Self

Chapter 13: *Healing from Trauma – Owning Your Self*, focuses on the transformative journey of healing from trauma, highlighting the importance of taking ownership of your mind, body, and emotions. Trauma is not just about the horrific events themselves, but the lasting imprints they leave on the body, mind, and soul. People may find themselves grappling with a range of challenging symptoms such as anxiety, depression, self-loathing, nightmares, flashbacks, and an overall sense of being disconnected from the present moment. The crux of healing lies in reclaiming self-leadership, learning to manage overwhelming emotions, and regaining control over how we react to triggers that remind us of past traumas. The path to recovery involves not just surviving but actively choosing to live fully, engaging with the people around you and reconnecting with your deeper sense of self.

Trauma recovery begins with understanding how the emotional brain responds to traumatic events, and why these reactions persist long after the event itself. The emotional brain houses the imprints of trauma and is responsible for triggering physical sensations such as a rapid heartbeat, shallow breathing, and intense fear when reminded of past experiences. This is often seen as the body’s way of trying to keep us safe, but when these responses are activated without a real threat, they can cause distress and interfere with everyday life. While the rational brain can help us understand why we feel the way we do, it is the emotional brain that requires focused attention and healing. Restoring the balance between the two is key to self-leadership and emotional regulation. This balance allows individuals to acknowledge their feelings without becoming overwhelmed by them and to regain the ability to respond to situations with calm and clarity.

A crucial part of the healing process is learning to tolerate and regulate these intense emotions. Self-awareness is a vital tool for this, as it allows individuals to notice the sensations they are experiencing without being controlled by them. The act of "noticing" allows for a deeper connection to the body and the present moment. Through techniques such as mindfulness, somatic therapies, and bodywork, trauma survivors are encouraged to reconnect with their inner experiences. These practices help to break the cycle of hyperarousal and dissociation that can keep people stuck in a reactive state, preventing them from being fully present and engaged in life. By paying attention to the body's sensations and the emotions tied to them, individuals can gradually learn to feel safe in their own bodies again.

The journey to healing also requires confronting past trauma, but it must be done in a safe and controlled manner. Re-traumatization, or experiencing intense emotional distress when recalling traumatic memories, can hinder recovery. Therefore, it’s essential for individuals to first develop a foundation of emotional regulation and coping strategies before revisiting traumatic events. Techniques like mindfulness, breathwork, and movement can help manage these overwhelming emotions, allowing individuals to process their experiences from a place of safety. By focusing on the present and grounding themselves in the body, trauma survivors can begin to reclaim their sense of control and ownership over their experiences, both past and present.

Healing from trauma is not a one-size-fits-all journey, and different individuals may find different approaches helpful at various stages of their recovery. Practices such as yoga, tai chi, and other mindfulness-based therapies have been shown to help people heal by addressing both the body and mind. These practices work by activating the body’s natural ability to heal and regulate itself. They promote physical relaxation, improve body awareness, and reduce stress, all of which help individuals move from a state of hyperarousal or numbness to a place of balance and calm. Furthermore, the importance of building healthy, supportive relationships cannot be overstated. A strong support system, whether through family, friends, or community, provides the emotional safety needed for healing. Feeling connected to others and receiving love

and understanding is a critical aspect of trauma recovery, as it helps individuals feel grounded and reassured as they face the challenges of healing.

An integral component of trauma recovery is the process of integrating traumatic memories. Rather than trying to forget or block out these painful experiences, healing involves recontextualizing them as part of a larger life story. This is where therapeutic techniques such as Eye Movement Desensitization and Reprocessing (EMDR) and sensorimotor therapies come into play. These approaches help individuals revisit their traumatic memories, not to relive the pain, but to view the events with a greater sense of perspective and control. By processing the trauma in this way, individuals can begin to distance themselves from the emotional intensity tied to those memories, allowing them to reclaim their power over their past.

Healing is not linear, and it often involves setbacks along the way. For many, the path to recovery may require a combination of different therapeutic methods, each addressing different aspects of the trauma. It is important to recognize that recovery is not just about "fixing" the past, but also about learning to live fully in the present and taking active steps toward creating a new future. This involves reclaiming a sense of agency, self-worth, and connection with others. Trauma survivors must be gentle with themselves, allowing time for their bodies and minds to heal at their own pace. By engaging in practices that foster emotional regulation, self-awareness, and physical relaxation, individuals can gradually restore their sense of safety and self-leadership.

In conclusion, healing from trauma is a multifaceted journey that requires dedication, patience, and support. The process involves not only addressing the emotional and physical reactions tied to the past but also learning to live fully and present in the here and now. Self-awareness, mindfulness, and bodywork can help individuals regain control over their emotions, while supportive relationships and therapy provide the foundation for safe healing. As individuals work through their trauma, they can come to understand that recovery is not about erasing the past but about integrating it into a new, empowered version of themselves. Through these processes, survivors can reclaim ownership of their minds and bodies, moving forward with resilience and

strength.



# Chapter 14: Language: Miracle and Tyranny

Chapter 14: *Language: Miracle and Tyranny*. This chapter focuses on the complexity of trauma and the role of language in its processing. The difficulty of articulating the effects of traumatic events highlights the limitations of traditional therapies like psychoanalysis and cognitive behavioral therapy (CBT). Many individuals, especially those recovering from trauma such as the September 11 attacks, have found more effective relief from non-verbal therapies like acupuncture, massage, yoga, and EMDR (Eye Movement Desensitization and Reprocessing), which focus on alleviating the physical aspects of trauma rather than forcing verbal expression. This shift in therapeutic preferences raises the fundamental question of how effective talking about trauma truly is for those who cannot find the words to describe their deepest pain.

Trauma, by its nature, often leaves individuals unable to express or even comprehend the magnitude of their emotions. Words fail to capture the raw, immediate experience of fear, grief, and terror; these feelings are often experienced as overwhelming images or visceral sensations, as seen with those impacted by the events of 9/11. T.E. Lawrence's reflection on war highlights this inability to fully process intense emotions: "There are pangs too sharp, griefs too deep, ecstasies too high for our finite selves to register." It is often not until trauma victims can articulate their experiences, piece by piece, that they begin to regain a sense of agency and coherence in their lives.

The silent weight of unspoken trauma can cause profound psychological and physical harm. When individuals keep their suffering hidden, whether out of fear, shame, or disbelief, they reinforce their isolation, which can perpetuate their distress. As Marion Woodman wisely noted, the neglected parts of ourselves, those parts silenced by trauma, become a "hungry animal" craving attention. For true healing to begin, the words of trauma must be spoken, not only for validation but for transformation. Naming the pain—whether through writing, speaking to others, or self-reflection—can

initiate the long process of recovery. When individuals can give voice to their suffering, it is the first step in breaking the cycle of silence and shame.

Another key element in trauma recovery is the therapeutic use of writing. Writing to oneself allows individuals to express their feelings without fear of judgment. In many cases, putting trauma into words can foster self-understanding and emotional release, as evidenced by studies led by James Pennebaker. Participants in these studies who wrote about traumatic experiences showed marked improvement in both mental and physical health, including fewer doctor visits and better immune function. Writing serves as a bridge between the mind and body, helping people reconnect with their innermost feelings and integrate them into their broader life narrative.

Trauma survivors often carry the burden of internal conflict—part of themselves wants to move forward, while another part clings to the past. Neuroscience supports the idea that trauma disrupts brain functions, particularly in areas related to emotional regulation and memory processing. Overcoming trauma requires not just reliving past events but engaging with the body’s sensations and emotional responses. Effective therapies like EMDR focus on integrating these fragmented experiences, allowing survivors to reframe traumatic memories and move beyond their emotional paralysis. This process empowers individuals to regain control over their lives, helping them transform from passive victims of their trauma to active participants in their healing journey.

For trauma victims, the journey to recovery is not just about revisiting painful memories but learning to live with and adapt to new ways of thinking and feeling. Writing, speaking, or even engaging in physical movement helps survivors reconnect with their emotional self in ways that can significantly alter their mental and physical health. By embracing language, whether spoken or written, individuals can begin to reclaim their identities and rewrite their personal stories. Trauma may have reshaped their lives, but with language, they have the power to reconstruct their narrative and heal from the wounds of the past.

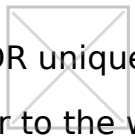
# Chapter 15: Letting Go of the Past: EMDR

Chapter 15: *Letting Go of the Past: EMDR* (Eye Movement Desensitization and Reprocessing) is a therapeutic approach that helps individuals process and release trauma that continues to impact their present lives. It works by using bilateral stimulation, often through eye movements, to access traumatic memories, and encourage the brain to reframe them. The process helps to integrate these memories in a way that allows individuals to view their trauma as something that happened in the past, rather than something that controls their present.

David, a middle-aged contractor, sought therapy to manage the intense rage attacks and emotional numbness that had plagued him for years. He was haunted by a traumatic experience from when he was 23, involving a brutal assault that cost him his left eye. Despite various attempts at therapy and self-regulation, David struggled with anger, an inability to connect with others, and a constant sense of impending danger. In his second therapy session, he was introduced to EMDR. As David revisited the memory of the attack while following the therapist's finger, a cascade of emotions and sensations surfaced. He could feel the terror and pain of the moment, but after completing the session, the traumatic memory no longer held the same intensity. Over the next few sessions, David's emotional regulation improved significantly, and he began to reconnect with his family, reflecting on how the trauma had shaped his life. By the end of his therapy, David reported feeling at peace and more connected to his wife and children, experiencing a sense of inner calm and stability that had eluded him for decades.

EMDR works by helping people access and process deeply ingrained memories, often without requiring them to verbalize the specifics of their trauma. This approach is particularly useful for individuals who have been unable to process their trauma through traditional talk therapy, as it bypasses the need for conscious recollection. The

technique also encourages the brain to reframe traumatic memories as past events, rather than as ongoing threats. By allowing individuals to process the emotional and physical sensations connected to their trauma, EMDR promotes a sense of integration and resolution, which reduces the emotional charge associated with traumatic memories. For David, this meant that his long-standing rage and tension began to dissipate as he no longer felt controlled by the memories of the attack.



What makes EMDR unique is its ability to activate the brain’s natural healing processes, similar to the way the brain processes memories during REM sleep. Research has shown that REM sleep plays a crucial role in memory consolidation and emotional regulation, helping the brain make sense of traumatic experiences and integrate them into a coherent life narrative. EMDR mimics this process by stimulating the brain's bilateral systems, enabling it to process trauma in a way that allows individuals to view their past with greater perspective. This process can be especially beneficial for those suffering from PTSD, as it helps to rewire the brain’s response to traumatic memories, turning them into manageable recollections rather than overwhelming emotional triggers.

EMDR’s effectiveness in trauma recovery extends beyond the mere reduction of symptoms; it helps individuals regain a sense of agency over their lives. Through EMDR, patients like David and Kathy have learned to confront their trauma and integrate it in ways that enable them to live more fully in the present. For those who struggle with the emotional aftereffects of trauma, EMDR provides a unique opportunity for transformation—turning traumatic events into stories of the past, rather than ongoing, intrusive experiences. This shift in perspective not only alleviates emotional pain but also restores a sense of empowerment and control.

# Chapter 16: Learning to Inhabit your Body: Yoga

Chapter 16: *Learning to Inhabit Your Body: Yoga*. Yoga offers more than physical benefits—it facilitates a deeper connection with our bodies and emotions, fostering a sense of inner peace and self-acceptance. When we begin to focus on the body, we activate a natural inclination toward self-care that emerges from within. This shift in attention, away from societal pressures and external standards, allows us to experience a new level of authenticity in how we care for ourselves. By practicing mindfulness and yoga, we can strengthen our connection to our bodies and reclaim our sense of wholeness. This process often starts with learning to quiet the body and mind, bringing us back to a place of comfort where healing can take root.

For individuals like Annie, who have experienced significant trauma, yoga provides a safe space to re-establish control over their bodies. Annie's journey began with deep-seated fear and anxiety, which manifested physically as muscle tension and hypervigilance. By engaging in gentle breathing exercises and yoga postures, she learned to reconnect with her body without fear, observing the sensations without judgment. This practice allowed Annie to release the emotional and physical trauma stored within her, gradually transforming her relationship with her body from one of survival to one of self-love. Over time, yoga became a pathway for her to access and heal the fragmented parts of herself that had been silenced by years of trauma.

Yoga not only helps individuals become more attuned to their bodily sensations, but it also serves as a tool for emotional regulation. The practice encourages the cultivation of mindfulness, which fosters awareness of how emotions manifest physically. By noticing these shifts in the body, individuals can learn to separate their emotions from the trauma that once overwhelmed them. This process enables them to respond to their experiences with greater self-compassion and emotional clarity, rather than with reactivity or avoidance. As Annie discovered, yoga helped her process memories and

emotions that had previously felt unmanageable, providing her with the tools to respond to life with a sense of agency and calm.

For those recovering from trauma, yoga also offers the potential to rewire the brain, particularly in areas related to emotional regulation and stress response. Research on yoga's impact on heart rate variability (HRV) has demonstrated its ability to balance the autonomic nervous system, which governs our fight-or-flight and rest-and-digest responses. Individuals with PTSD or chronic anxiety often experience an imbalance in this system, making them more prone to overreacting to stress. Yoga's focus on breath control and body awareness helps to restore equilibrium, enhancing both mental and physical resilience. Through consistent practice, individuals can retrain their bodies to respond to stress in healthier, more balanced ways, improving overall well-being and reducing the effects of trauma.

Additionally, the concept of interoception—the ability to sense and interpret bodily sensations—plays a crucial role in trauma recovery. Trauma survivors often become disconnected from their bodies as a coping mechanism, leading to a lack of awareness of their physical sensations. Yoga practice encourages individuals to slow down and tune into these sensations, fostering a deeper understanding of how emotions and physical states are interconnected. As individuals develop this awareness, they can better manage their emotional responses, creating a stronger foundation for self-regulation and healing. By learning to listen to their bodies, trauma survivors can begin to feel more present and connected to themselves, fostering a sense of safety and security that was once lost.

The benefits of yoga in trauma recovery are not limited to the physical aspects of healing. The practice also enhances emotional processing by allowing individuals to acknowledge and release pent-up emotions that have been buried for years. As seen in Annie's case, regular yoga practice can lead to breakthroughs in emotional expression, enabling individuals to articulate their feelings and experiences more freely. Over time, yoga becomes a tool for transforming not only the body but also the mind, helping individuals regain their sense of self and agency. Through the discipline

of yoga, trauma survivors learn to reclaim their bodies, heal emotional wounds, and ultimately live more fulfilling lives.



# Chapter 17: Putting the Pieces Together: Self-Leadership

Chapter 17: *Putting the Pieces Together: Self-Leadership*. In life, we all experience moments where parts of ourselves seem to take over. For example, when confronted with trauma, we develop coping mechanisms that help us survive but may also fragment our sense of self. One of the key aspects of self-leadership is understanding and managing these internal parts, each with its own needs and responses. This process of integration is central to healing, especially for those who have faced significant trauma or hardship. The healing journey involves acknowledging these parts, understanding their roles, and finding ways to guide them toward a harmonious balance.

A person’s internal system is much like an organization that requires leadership to function effectively. Internal parts often emerge to protect the individual from overwhelming emotions, especially when these emotions are tied to painful experiences. Over time, these parts can become entrenched, influencing behavior and emotional responses in ways that may no longer be helpful. One of the critical goals of self-leadership is to develop the ability to observe and manage these parts with compassion and curiosity. By fostering mindfulness and self-awareness, individuals can engage with their inner selves in a more harmonious way, transforming the conflict between these parts into a cooperative internal dialogue.

To heal from trauma, it is essential to revisit and integrate these parts rather than suppress them. Parts like the inner critic, the childlike protector, or the angry adolescent are often products of past experiences, such as abuse or neglect, and have learned survival strategies that no longer serve the individual. For example, in cases of dissociative identity disorder (DID), these parts may become so fragmented that they

take on distinct personalities or roles. Understanding that these parts are not inherently negative but have protective functions allows individuals to work toward self-leadership, helping each part find its place in a healthy internal system. This process involves separating the “Self” from these parts, so that the person can lead their internal family with the wisdom and compassion needed to heal.

A crucial aspect of self-leadership is learning to address the needs of each part and ensuring that none of them dominate or sabotage the others. For instance, when working with trauma survivors, many of the defensive parts such as anger, numbness, or fear, are protecting vulnerable exiled parts from further harm. By recognizing these parts and understanding their origins, individuals can begin to dismantle the extreme beliefs and behaviors they have developed to protect themselves. This allows for a more integrated sense of self, where past trauma no longer dictates responses to current life situations. The process is not about eliminating these parts but about integrating them into a cohesive and functional whole. By doing so, individuals create an inner environment where all parts can coexist and support the person’s overall well-being.

Mindfulness plays a central role in fostering self-leadership. It allows individuals to become aware of their internal states and engage with them in a non-judgmental way. This helps prevent parts from blending into one another, allowing the "Self"—the core, undamaged part of the person—to emerge. When the Self takes the lead, it can help manage these parts and guide them towards healthier interactions. This is especially important for trauma survivors, whose parts may often be in conflict, causing emotional distress or self-sabotage. Mindful self-leadership gives individuals the ability to step back from emotional reactions and view their internal landscape with clarity, enabling them to respond to life’s challenges with greater resilience and insight.

Furthermore, the role of a compassionate observer is essential in the healing process. Whether through therapy or self-reflection, acknowledging and witnessing each part’s struggles without judgment is crucial. By offering compassion to the parts that carry trauma and pain, individuals can begin to transform their relationship with themselves.

This approach not only fosters healing but also strengthens the person’s sense of agency, helping them feel more connected to their own body, mind, and emotions. Over time, this leads to greater emotional stability and the ability to engage with life more fully, free from the constraints of past trauma.



# Chapter 18: Filling in the Holes: Creating Structures

Chapter 18: *Filling in the Holes: Creating Structures*. Addressing trauma is more than just remembering the past—it involves confronting the deep voids left by feelings of neglect, fear, and abandonment. Growing up without affection, in a world where your pain went unseen, often leaves a person struggling to feel loved or wanted. The emotional scars from such experiences can distort one's sense of self-worth and agency, creating a lifelong challenge in forming a healthy identity.

Research by Judy Herman and others has demonstrated that individuals who felt unwanted or unsafe as children often struggle to fully benefit from conventional therapy. These people may possess a deep intellectual understanding of their issues, yet find it hard to engage with the emotions and memories that would allow for healing. As a psychiatrist, I witnessed firsthand how this emotional disconnect prevented some of my most committed patients from making meaningful progress in therapy. They could not access the emotional memories that could reframe their negative beliefs and feelings about themselves.

A breakthrough came when I attended a workshop led by Albert Pesso, a former dancer and the creator of PBSP (Pesso Boyden System Psychomotor Therapy). Pesso’s approach was centered around using physical movements and group interaction to help individuals reconnect with their emotions and memories. His technique involved creating "structures," physical role-playing scenarios where participants could explore and re-enact critical moments from their past. Through these structures, the protagonists could confront the emotional absence in their lives, often for the first time, and begin to fill the void with experiences of care and validation. The physicality of this approach helped the participants experience emotions in a visceral way,

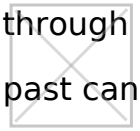
something traditional talk therapy often struggled to achieve.

This innovative approach was especially powerful when dealing with unresolved trauma. By using role play and "contact persons," participants could recreate situations where they felt neglected or unloved, and then insert idealized figures into these scenes, such as a nurturing parent or a supportive friend. This process allowed them to experience what it would have felt like if their needs had been met, giving them a new internal map of safety and care. Research on neuroimaging suggests that trauma is often imprinted on the right hemisphere of the brain, the area responsible for nonverbal communication, such as facial expressions and body language. By engaging this part of the brain, PBSP therapy facilitates a deeper, more profound healing experience than cognitive approaches alone.

Through these physical structures, individuals could also explore new forms of emotional expression and release. For instance, when one participant confronted her father’s abuse, she was able to create an idealized version of him, one who could provide care and protection. As the exercise unfolded, she not only experienced the pain of the past but also began to feel the relief of witnessing a father who was capable of love and understanding. This process helped shift her perception of herself, allowing her to internalize a more balanced and caring image of her father, which in turn improved her sense of self-worth.

The role of the therapist in these sessions is crucial—they guide participants in creating these emotional shifts by facilitating the movement of the structures and offering feedback through "witnessing." The witnessing presence provides validation and recognition of the participant's feelings, offering a safe space for deeper exploration. As the protagonist moves through their structure, they often have powerful emotional breakthroughs, experiencing a catharsis that is difficult to achieve through words alone. For many, these breakthroughs are essential for overcoming the trauma that has shaped their identity for so long.

In these types of therapy, individuals not only come to terms with the hurt of the past but also create new, empowering narratives for their futures. Just like revisiting a difficult childhood memory, these therapeutic exercises help individuals rewrite the story of their lives, giving them a sense of control and agency over their emotions. The result is not only a change in how they see themselves but a transformation in their ability to relate to others, ultimately fostering healthier, more fulfilling relationships. As we have learned through decades of psychological research, changing the emotional landscape of the past can have a profound impact on the present, allowing individuals to rewrite the script of their lives.



Psychomotor therapy offers a tangible and transformative way to reconnect with lost parts of oneself and heal from the wounds of trauma. By creating structures, individuals can relive past events in a controlled, safe space and experiment with rewriting them in a way that fulfills unmet emotional needs. This approach helps break the cycle of trauma and abandonment, offering participants a chance to rebuild their self-worth and reclaim their emotional agency.

# Chapter 19: Rewiring the Brain: Neurofeedback

Chapter 19: *Rewiring the Brain: Neurofeedback*. The summer following my first year of medical school, I found myself working as a part-time research assistant in a sleep lab at Boston State Hospital. My responsibilities involved preparing and monitoring study participants while analyzing their EEG, or electroencephalogram, readings. Subjects would come in, I'd attach electrodes to their scalps and around their eyes, and set up machines to record brain activity throughout the night, all while analyzing the data and even taking time for a quick check of baseball scores on the radio. These quiet nights, spent observing the brain's electrical signals during sleep, ultimately contributed to key findings in sleep research, but also led me to question how electrical activity in the brain could provide deeper insights into psychiatric disorders.

The relationship between electrical signals in the brain and psychiatric conditions became clearer through studies in the late 20th century. Initially, much of the focus was on pharmacological treatments, but research dating back to the 1920s, when Hans Berger first recorded brain activity using EEG, showed that different mental activities produced different brain wave patterns. For example, certain brain wave frequencies appeared when individuals were solving problems, suggesting that brain activity could potentially be mapped to mental states. However, this insight didn't immediately lead to the breakthroughs scientists hoped for in understanding the neurological roots of psychiatric issues. As I navigated my own medical career, EEG results from my patients rarely helped in identifying clear patterns tied to emotional instability, and the lack of effective treatments often left me frustrated with the limitations of brain wave analysis.

This changed when I came across a 2000 study by Dr. Alexander McFarlane and his team in Adelaide, which explored the differences in brain activity between traumatized individuals and non-traumatized subjects. The study revealed that, while both groups

responded to external stimuli, the brains of those with trauma showed more erratic patterns of attention, with regions failing to coordinate properly. Specifically, the traumatized subjects struggled with filtering out irrelevant information, a phenomenon that explained why so many individuals with trauma, like those with PTSD, find it difficult to focus or learn from their experiences. This discovery illuminated how trauma could alter the brain's wiring, preventing it from fully processing daily information, making ordinary life a challenge for many survivors.

Building on these insights, I was introduced to neurofeedback, a treatment approach designed to retrain the brain's electrical activity. Neurofeedback is rooted in the concept that the brain can be trained to regulate itself by providing real-time feedback on its own activity. This was further exemplified when I met Sebern Fisher, a clinical director using neurofeedback to help children with emotional and developmental challenges. Fisher demonstrated how neurofeedback could produce remarkable changes, such as in a young boy whose behavior and drawing abilities improved significantly after undergoing neurofeedback treatment. Witnessing such transformations in a relatively short time was a turning point in my understanding of the potential for neurofeedback to address deep-seated brain dysfunctions, especially in trauma survivors.

The core principle behind neurofeedback is simple yet powerful: by offering the brain feedback on its electrical patterns, it can learn to adjust and self-regulate. This is akin to observing someone's reactions in a conversation; if they smile or nod, you continue speaking, but if they seem bored, you adjust your approach. Neurofeedback uses a similar reward-and-punishment system to train the brain to enhance certain frequencies and suppress others, ultimately improving focus, emotional regulation, and overall mental function. By altering these patterns, neurofeedback can aid in the treatment of a wide range of conditions, including PTSD, ADHD, anxiety, and more.

Furthermore, neurofeedback has proven beneficial in addressing the complex neural imbalances that often accompany trauma. Through targeted training, individuals with PTSD can learn to regulate their emotional responses, reduce hyperarousal, and

improve their ability to focus on the present moment. For example, studies have shown that veterans dealing with PTSD have benefited from neurofeedback by learning to calm overactive brain regions associated with fear, leading to improvements in mental clarity and emotional stability. This process of rewiring the brain isn’t just about diminishing symptoms; it’s about enabling individuals to regain control over their mental and emotional states, empowering them to respond to life’s challenges with greater resilience and awareness.



In conclusion, neurofeedback offers a revolutionary approach to understanding and treating psychiatric disorders. By directly engaging with the brain’s electrical patterns, this treatment helps individuals build healthier neural pathways, leading to lasting changes in their emotional and cognitive functioning. As research in this field continues to grow, neurofeedback stands as a promising tool for not just treating trauma and mental health conditions, but for enhancing cognitive performance in a variety of domains, from sports to artistic endeavors. Its applications are vast, and its potential continues to unfold as we better understand how the brain’s electrical rhythms influence our thoughts, behaviors, and experiences.

This chapter has explored how the brain’s electrical patterns influence mental and emotional functioning and highlighted the potential of neurofeedback to retrain the brain. With continued research, this innovative therapy could become an essential tool in the treatment of various psychological conditions, helping individuals rewire their brains for greater emotional stability and cognitive health.

# Chapter 20: Finding Your Voice: Communal Rhythms and Theater

**Chapter 20:** In the world of acting, it's often said that the true essence of a character isn't something you simply put on but rather discover within yourself. The actor doesn't fabricate a persona but instead taps into an expanded version of their own identity, bringing out qualities they might not have fully realized were there. This process of self-discovery is crucial in both professional and therapeutic theater, where acting becomes more than just a performance; it becomes a method of healing and self-expression.

For many, the therapeutic potential of theater is most evident in how it can help individuals recover from deep personal trauma. One example of this is seen through the story of Nick, the author's son, who suffered from chronic fatigue syndrome and became withdrawn and isolated due to his health struggles. When his mother recognized that Nick found some energy in the evenings, they enrolled him in an improvisational theater class. Initially, it was a way to get him engaged with others, but over time, Nick's participation in theater provided him with something much deeper: a chance to embody a different version of himself. The more he performed, the more he rediscovered his confidence and sense of self-worth. The acting exercises, such as playing tough, authoritative roles like Action in *West Side Story* and the Fonz in *Happy Days*, gave him a new sense of agency and physicality, allowing him to imagine himself as someone powerful, respected, and in control. This transformation in Nick's self-perception, thanks to theater, was instrumental in his emotional and psychological recovery, ultimately helping him embrace his creative and confident adulthood.

The therapeutic effects of theater extend beyond individual stories like Nick’s, reaching entire communities and groups, especially those dealing with trauma or emotional distress. The author draws a parallel with veterans, noting how their participation in a theatrical production in the late '80s helped them process their experiences with PTSD. When these veterans, who had been receiving therapy at a VA clinic, joined forces with playwright David Mamet to create a script about their experiences, the power of acting took hold. This involvement was transformative—far more so than traditional therapy—as the veterans were able to confront their trauma publicly, with the added support of professional actors like Al Pacino and Michael J. Fox. Their performance was not just a way to raise awareness but a profound healing experience that allowed them to publicly process their trauma and reconnect with their humanity. This form of cathartic theater allowed these individuals to transform painful memories into a collective narrative, helping them regain their sense of self and a deeper understanding of their own emotional journeys.

The role of communal rhythms and theater in trauma recovery also echoes through various cultural practices, where collective movement and expression have been used for centuries to heal and unite communities. From ancient Greek tragedies to modern-day rituals, theater and communal performance have long served as vehicles for confronting deep emotional pain and societal issues. In fact, the ancient Greeks used theater as a form of civic healing, especially for returning war veterans, who were often the audience for plays like Aeschylus's *Oresteia*. The communal aspect of theater—where the audience’s emotional reactions are visible to all—allowed for a collective experience of grief, trauma, and reconciliation. This approach of integrating theater with the lived experiences of individuals facing war, loss, and injustice has continued through modern projects like Bryan Doerries' *Theater of War*, which has used Greek dramas to help combat veterans and their families navigate the effects of PTSD. By immersing audiences in these ancient stories of trauma, sacrifice, and justice, modern theater has provided a space for survivors of violence to connect, process, and heal.

Through the continued exploration of theater as a therapeutic tool, various programs have emerged that help people confront trauma by engaging with the deep, emotional themes present in theatrical works. One notable example is the Possibility Project in New York, where youth in foster care write and perform their own musical productions, delving into personal stories and collective themes. This process empowers young people to express emotions they may have repressed, providing them with a platform to process their past while simultaneously developing skills that will help them navigate life’s challenges. In this environment, theater becomes a pathway for self-empowerment, allowing participants to take control of their stories and transform their trauma into something creative and powerful. Similarly, Shakespeare in the Courts provides juvenile offenders with a structured space to confront their inner conflicts through the language of Shakespeare, a therapeutic technique that encourages emotional release and connection. By engaging with these powerful works, participants learn to channel their personal struggles into art, finding solace and strength in the process.

Ultimately, the therapeutic potential of theater lies in its ability to foster a deep connection between individuals and their emotions, allowing them to safely explore complex feelings of grief, anger, and loss. It is a powerful tool that can help individuals reclaim their agency, find their voice, and reconnect with their bodies and their sense of self. Through acting, whether on the stage or in therapeutic settings, people are given the chance to embody and express emotions that might otherwise be too overwhelming to face. As these stories illustrate, theater is not merely an artistic endeavor; it is a form of emotional and psychological healing, one that taps into the deepest parts of ourselves and helps us confront the past, process our trauma, and step into the future with renewed strength and purpose.

# APPENDIX: CONSENSUS PROPOSED CRITERIA FOR DEVELOPMENTAL TRAUMA DISORDER

**APPENDIX**

**CONSENSUS PROPOSED CRITERIA FOR DEVELOPMENTAL TRAUMA DISORDER**

The goal of introducing the diagnosis of Developmental Trauma Disorder is to capture the reality of the clinical presentations of children and adolescents exposed to chronic interpersonal trauma and thereby guide clinicians to develop and utilize effective interventions and for researchers to study the neurobiology and transmission of chronic interpersonal violence. Whether or not they exhibit symptoms of PTSD, children who have developed in the context of ongoing danger, maltreatment, and inadequate caregiving systems are ill-served by the current diagnostic system, as it frequently leads to no diagnosis, multiple unrelated diagnoses, an emphasis on behavioral control without recognition of interpersonal trauma and lack of safety in the etiology of symptoms, and a lack of attention to ameliorating the developmental disruptions that underlie the symptoms.

The Consensus Proposed Criteria for Developmental Trauma Disorder were devised and put forward in February 2009 by a National Child Traumatic Stress Network (NCTSN)-affiliated Task Force led by Bessel A. van der Kolk, MD and Robert S. Pynoos, MD, with the participation of Dante Cicchetti, PhD, Marylene Cloitre, PhD, Wendy D’Andrea, PhD, Julian D. Ford, PhD, Alicia F. Lieberman, PhD, Frank W. Putnam, MD, Glenn Saxe, MD, Joseph Spinazzola, PhD, Bradley C. Stolbach, PhD, and Martin Teicher, MD, PhD. The consensus proposed criteria are based on extensive review of empirical literature, expert clinical wisdom, surveys of NCTSN clinicians, and preliminary analysis of data from thousands of children in numerous clinical and child service system settings, including NCTSN treatment centers, state child welfare systems, inpatient

psychiatric settings, and juvenile detention centers.

Because their validity, prevalence, symptom thresholds, or clinical utility have yet to be examined through prospective data collection or analysis, these proposed criteria should not be viewed as a formal diagnostic category to be incorporated into the DSM as written here. Rather, they are intended to describe the most clinically significant symptoms exhibited by many children and adolescents following complex trauma. These proposed criteria have guided the Developmental Trauma Disorder field trials that began in 2009 and continue to this day.

**CONSENSUS PROPOSED CRITERIA FOR DEVELOPMENTAL TRAUMA DISORDER**

**A. Exposure.** The child or adolescent has experienced or witnessed multiple or prolonged adverse events over a period of at least one year beginning in childhood or early adolescence, including:

A.1. Direct experience or witnessing of repeated and severe episodes of interpersonal violence; and

A.2. Significant disruptions of protective caregiving as the result of repeated changes in primary caregiver; repeated separation from the primary caregiver; or exposure to severe and persistent emotional abuse

**B. Affective and Physiological Dysregulation.** The child exhibits impaired normative developmental competencies related to arousal regulation, including at least two of the following:

B.1. Inability to modulate, tolerate, or recover from extreme affect states (e.g., fear, anger, shame), including prolonged and extreme tantrums, or immobilization

B.2. Disturbances in regulation in bodily functions (e.g., persistent disturbances in sleeping, eating, and elimination; over-reactivity or under-reactivity to touch and sounds; disorganization during routine transitions)

B.3. Diminished awareness/dissociation of sensations, emotions, and bodily states

B.4. Impaired capacity to describe emotions or bodily states

**C. Attentional and Behavioral Dysregulation.** The child exhibits impaired normative developmental competencies related to sustained attention, learning, or coping with stress, including at least three of the following:

C.1. Preoccupation with threat, or impaired capacity to perceive threat, including misreading of safety and danger cues

C.2. Impaired capacity for self-protection, including extreme risk-taking or thrill-seeking

C.3. Maladaptive attempts at self-soothing (e.g., rocking and other rhythmical movements, compulsive masturbation)

C.4. Habitual (intentional or automatic) or reactive self-harm

C.5. Inability to initiate or sustain goal-directed behavior

**D. Self and Relational Dysregulation.** The child exhibits impaired normative developmental competencies in their sense of personal identity and involvement in relationships, including at least three of the following:

D.1. Intense preoccupation with safety of the caregiver or other loved ones (including precocious caregiving) or difficulty tolerating reunion with them after separation

D.2. Persistent negative sense of self, including self-loathing, helplessness, worthlessness, ineffectiveness, or defectiveness

D.3. Extreme and persistent distrust, defiance or lack of reciprocal behavior in close relationships with adults or peers

D.4. Reactive physical or verbal aggression toward peers, caregivers, or other adults

D.5. Inappropriate (excessive or promiscuous) attempts to get intimate contact (including but not limited to sexual or physical intimacy) or excessive reliance on peers or adults for safety and reassurance

# EPILOGUE: CHOICES TO BE MADE

**EPILOGUE: CHOICES TO BE MADE**

We are on the verge of becoming a trauma-conscious society. Almost every day one of my colleagues publishes another report on how trauma disrupts the workings of mind, brain, and body. The ACE study showed how early abuse devastates health and social functioning, while James Heckman won a Nobel Prize for demonstrating the vast savings produced by early intervention in the lives of children from poor and troubled families: more high school graduations, less criminality, increased employment, and decreased family and community violence. All over the world I meet people who take these data seriously and who work tirelessly to develop and apply more effective interventions, whether devoted teachers, social workers, doctors, therapists, nurses, philanthropists, theater directors, prison guards, police officers, or meditation coaches. If you have come this far with me in *The Body Keeps the Score*, you have also become part of this community.

Advances in neuroscience have given us a better understanding of how trauma changes brain development, self-regulation, and the capacity to stay focused and in tune with others. Sophisticated imaging techniques have identified the origins of PTSD in the brain, so that we now understand why traumatized people become disengaged, why they are bothered by sounds and lights, and why they may blow up or withdraw in response to the slightest provocation. We have learned how, throughout life, experiences change the structure and function of the brain—and even affect the genes we pass on to our children. Understanding many of the fundamental processes that underlie traumatic stress opens the door to an array of interventions that can bring the brain areas related to self-regulation, self-perception, and attention back online. We know not only how to treat trauma but also, increasingly, how to prevent it.

And yet, after attending another wake for a teenager who was killed in a drive-by shooting in the Blue Hill Avenue section of Boston or after reading about the latest school budget cuts in impoverished cities and towns, I find myself close to despair. In many ways we seem to be regressing, with measures like the callous congressional elimination of food stamps for kids whose parents are unemployed or in jail; with the stubborn opposition to universal health care in some quarters; with psychiatry's obtuse refusal to make connection between psychic suffering and social conditions; with the refusal to prohibit the sale or possession of weapons whose only purpose is to kill large numbers of human beings; and with our tolerance for incarcerating a huge segment of our population, wasting their lives as well as our resources.

Discussions of PTSD still tend to focus on recently returned soldiers, victims of terrorist bombings, or survivors of terrible accidents. But trauma remains a much larger public health issue, arguably the greatest threat to our national well-being. Since 2001 far more Americans have died at the hands of their partners or other family members than in the wars in Iraq and Afghanistan. American women are twice as likely to suffer domestic violence as breast cancer. The American Academy of Pediatrics estimates that firearms kill twice as many children as cancer does. All around Boston I see signs advertising the Jimmy Fund, which fights children's cancer, and for marches to fund research on breast cancer and leukemia, but we seem too embarrassed or discouraged to mount a massive effort to help children and adults learn to deal with the fear, rage, and collapse, the predictable consequences of having been traumatized.

When I give presentations on trauma and trauma treatment, participants sometimes ask me to leave out the politics and confine myself to talking about neuroscience and therapy. I wish I could separate trauma from politics, but as long as we continue to live in denial and treat only trauma while ignoring its origins, we are bound to fail. In today's world your ZIP code, even more than your genetic code, determines whether you will lead a safe and healthy life. People's income, family structure, housing, employment, and educational opportunities affect not only their risk of developing

traumatic stress but also their access to effective help to address it. Poverty, unemployment, inferior schools, social isolation, widespread availability of guns, and substandard housing all are breeding grounds for trauma. Trauma breeds further trauma; hurt people hurt other people.

My most profound experience with healing from collective trauma was witnessing the work of the South African Truth and Reconciliation Commission, which was based on the central guiding principle of Ubuntu, a Xhosa word that denotes sharing what you have, as in “My humanity is inextricably bound up in yours.” Ubuntu recognizes that true healing is impossible without recognition of our common humanity and our common destiny.

We are fundamentally social creatures—our brains are wired to foster working and playing together. Trauma devastates the social-engagement system and interferes with cooperation, nurturing, and the ability to function as a productive member of the clan. In this book we have seen how many mental health problems, from drug addiction to self-injurious behavior, start off as attempts to cope with emotions that became unbearable because of a lack of adequate human contact and support. Yet institutions that deal with traumatized children and adults all too often bypass the emotional-engagement system that is the foundation of who we are and instead focus narrowly on correcting “faulty thinking” and on suppressing unpleasant emotions and troublesome behaviors.

People can learn to control and change their behavior, but only if they feel safe enough to experiment with new solutions. The body keeps the score: If trauma is encoded in heartbreaking and gut-wrenching sensations, then our first priority is to help people move out of fight-or-flight states, reorganize their perception of danger, and manage relationships. Where traumatized children are concerned, the last things we should be cutting from school schedules are the activities that can do precisely that: chorus, physical education, recess, and anything else that involves movement, play, and other forms of joyful engagement.

As we've seen, my own profession often compounds, rather than alleviates, the problem. Many psychiatrists today work in assembly-line offices where they see patients they hardly know for fifteen minutes and then dole out pills to relieve pain, anxiety, or depression. Their message seems to be "Leave it to us to fix you; just be compliant and take these drugs and come back in three months—but be sure not to use alcohol or (illegal) drugs to relieve your problems." Such shortcuts in treatment make it impossible to develop self-care and self-leadership. One tragic example of this orientation is the rampant prescription of painkillers, which now kill more people each year in the United States than guns or car accidents.

Our increasing use of drugs to treat these conditions doesn't address the real issues: What are these patients trying to cope with? What are their internal or external resources? How do they calm themselves down? Do they have caring relationships with their bodies, and what do they do to cultivate a physical sense of power, vitality, and relaxation? Do they have dynamic interactions with other people? Who really knows them, loves them, and cares about them? Whom can they count on when they're scared, when their babies are ill, or when they are sick themselves? Are they members of a community, and do they play vital roles in the lives of the people around them? What specific skills do they need to focus, pay attention, and make choices? Do they have a sense of purpose? What are they good at? How can we help them feel in charge of their lives?

I like to believe that once our society truly focuses on the needs of children, all forms of social support for families—a policy that remains so controversial in this country—will gradually come to seem not only desirable but also doable. What difference would it make if all American children had access to high-quality day care where parents could safely leave their children as they went off to work or school? What would our school systems look like if all children could attend well-staffed preschools that cultivated cooperation, self-regulation, perseverance, and concentration (as opposed to focusing on passing tests, which will likely happen once children are allowed to follow their natural curiosity and desire to excel, and are not

shut down by hopelessness, fear, and hyperarousal)?

I have a family photograph of myself as a five-year-old, perched between my older (obviously wiser) and younger (obviously more dependent) siblings. In the picture I proudly hold up a wooden toy boat, grinning from ear to ear: “See what a wonderful kid I am and see what an incredible boat I have! Wouldn’t you love to come and play with me?” All of us, but especially children, need such confidence—confidence that others will know, affirm, and cherish us. Without that we can’t develop a sense of agency that will enable us to assert: “This is what I believe in; this is what I stand for; this is what I will devote myself to.” As long as we feel safely held in the hearts and minds of the people who love us, we will climb mountains and cross deserts and stay up all night to finish projects. Children and adults will do anything for people they trust and whose opinion they value.

But if we feel abandoned, worthless, or invisible, nothing seems to matter. Fear destroys curiosity and playfulness. In order to have a healthy society we must raise children who can safely play and learn. There can be no growth without curiosity and no adaptability without being able to explore, through trial and error, who you are and what matters to you. Currently more than 50 percent of the children served by Head Start have had three or more adverse childhood experiences like those included in the ACE study: incarcerated family members, depression, violence, abuse, or drug use in the home, or periods of homelessness.

People who feel safe and meaningfully connected with others have little reason to squander their lives doing drugs or staring numbly at television; they don’t feel compelled to stuff themselves with carbohydrates or assault their fellow human beings. However, if nothing they do seems to make a difference, they feel trapped and become susceptible to the lure of pills, gang leaders, extremist religions, or violent political movements—anybody and anything that promises relief. As the ACE study has shown, child abuse and neglect is the single most preventable cause of mental illness, the single most common cause of drug and alcohol abuse, and a significant contributor to leading causes of death such as diabetes, heart disease, cancer, stroke, and suicide.

My colleagues and I focus much of our work where trauma has its greatest impact: on children and adolescents. Since we came together to establish the National Child Traumatic Stress Network in 2001, it has grown into a collaborative network of more than 150 centers nationwide, each of which has created programs in schools, juvenile justice systems, child welfare agencies, homeless shelters, military facilities, and residential group homes.

The Trauma Center is one of NCTSN's Treatment Development and Evaluation sites. My colleagues Joe Spinazzola, Margaret Blaustein, and I have developed comprehensive programs for children and adolescents that we, with the help of trauma-savvy colleagues in Hartford, Chicago, Houston, San Francisco, Anchorage, Los Angeles, and New York, are now implementing. Our team selects a particular area of the country to work in every two years, relying on local contacts to identify organizations that are energetic, open, and well respected; these will eventually serve as new nodes for treatment dissemination. For example, I collaborated for one two-year period with colleagues in Missoula, Montana, to help develop a culturally sensitive trauma program on Blackfoot Indian reservations.

The greatest hope for traumatized, abused, and neglected children is to receive a good education in schools where they are seen and known, where they learn to regulate themselves, and where they can develop a sense of agency. At their best, schools can function as islands of safety in a chaotic world. They can teach children how their bodies and brains work and how they can understand and deal with their emotions. Schools can play a significant role in instilling the resilience necessary to deal with the traumas of neighborhoods or families. If parents are forced to work two jobs to eke out a living, or if they are too impaired, overwhelmed, or depressed to be attuned to the needs of their kids, schools by default have to be the places where children are taught self-leadership and an internal locus of control.

When our team arrives at a school, the teachers' initial response is often some version of "If I'd wanted to be a social worker, I would have gone to social work school. But I came here to be a teacher." Many of them have already learned the hard way,

however, that they cannot teach if they have a classroom filled with students whose alarm bells are constantly going off. Even the most committed teachers and school systems often come to feel frustrated and ineffective because so many of their kids are too traumatized to learn. Focusing only on improving test scores won't make any difference if teachers can't effectively address the behavior problems of these students. The good news is that the basic principles of trauma-focused interventions can be translated into practical day-to-day routines and approaches that can transform the entire culture of a school.

Most teachers we work with are intrigued to learn that abused and neglected students are likely to interpret any deviation from routine as danger and that their extreme reactions usually are expressions of traumatic stress. Children who defy the rules are unlikely to be brought to reason by verbal reprimands or even suspension—a practice that has become epidemic in American schools. Teachers' perspectives begin to change when they realize that these kids' disturbing behaviors started out as frustrated attempts to communicate distress and as misguided attempts to survive.

More than anything else, being able to feel safe with other people defines mental health; safe connections are fundamental to meaningful and satisfying lives. The critical challenge in a classroom setting is to foster reciprocity: truly hearing and being heard; really seeing and being seen by other people. We try to teach everyone in a school community—office staff, principals, bus drivers, teachers, and cafeteria workers—to recognize and understand the effects of trauma on children and to focus on the importance of fostering safety, predictability, and being known and seen. We make certain that the children are greeted by name every morning and that teachers make face-to-face contact with each and every one of them. Just as in our workshops, group work, and theater programs, we always start the day with check-ins: taking the time to share what's on everybody's mind.

Many of the children we work with have never been able to communicate successfully with language, as they are accustomed to adults who yell, command, sulk, or put earbuds in their ears. One of our first steps is to help their teachers model new ways of

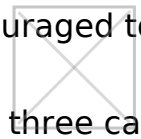
talking about feelings, stating expectations, and asking for help. Instead of yelling, “Stop!” when a child is throwing a tantrum or making her sit alone in the corner, teachers are encouraged to notice and name the child’s experience, as in “I can see how upset you are”; to give her choices, as in “Would you like to go to the safe spot or sit on my lap?”; and to help her find words to describe her feelings and begin to find her voice, as in: “What will happen when you get home after class?” It may take many months for a child to know when it is safe to speak the truth (because it will never be universally safe), but for children, as for adults, identifying the truth of an experience is essential to healing from trauma.

It is standard practice in many schools to punish children for tantrums, spacing out, or aggressive outbursts—all of which are often symptoms of traumatic stress. When that happens, the school, instead of offering a safe haven, becomes yet another traumatic trigger. Angry confrontations and punishment can at best temporarily halt unacceptable behaviors, but since the underlying alarm system and stress hormones are not laid to rest, they are certain to erupt again at the next provocation.

In such situations the first step is acknowledging that a child is upset; then the teacher should calm him, then explore the cause and discuss possible solutions. For example, when a first-grader melts down, hitting his teacher and throwing objects around, we encourage his teacher to set clear limits while gently talking to him: “Would you like to wrap that blanket around you to help you calm down?” (The kid is likely to scream, “No!” but then curl up under the blanket and settle down.) Predictability and clarity of expectations are critical; consistency is essential. Children from chaotic backgrounds often have no idea how people can effectively work together, and inconsistency only promotes further confusion. Trauma-sensitive teachers soon realize that calling a parent about an obstreperous kid is likely to result in a beating and further traumatization.

Our goal in all these efforts is to translate brain science into everyday practice. For example, calming down enough to take charge of ourselves requires activating the brain areas that notice our inner sensations, the self-observing watchtower discussed

in chapter 4. So a teacher might say: “Shall we take some deep breaths or use the breathing star?” (This is a colorful breathing aid made out of file folders.) Another option might be having the child sit in a corner wrapped in a heavy blanket while listening to some soothing music through headphones. Safe areas can help kids calm down by providing stimulating sensory awareness: the texture of burlap or velvet; shoe boxes filled with soft brushes and flexible toys. When the child is ready to talk again, he is encouraged to tell someone what is going on before he rejoins the group.



Kids as young as three can blow soap bubbles and learn that when they slow down their breathing to six breaths per minute and focus on the out breath as it flows over their upper lip, they will feel more calm and focused. Our team of yoga teachers works with children nearing adolescence specifically to help them “befriend” their bodies and deal with disruptive physical sensations. We know that one of the prime reasons for habitual drug use in teens is that they cannot stand the physical sensations that signal fear, rage, and helplessness.

Self-regulation can be taught to many kids who cycle between frantic activity and immobility. In addition to reading, writing, and arithmetic, all kids need to learn self-awareness, self-regulation, and communication as part of their core curriculum. Just as we teach history and geography, we need to teach children how their brains and bodies work. For adults and children alike, being in control of ourselves requires becoming familiar with our inner world and accurately identifying what scares, upsets, or delights us.

Emotional intelligence starts with labeling your own feelings and attuning to the emotions of the people around you. We begin very simply: with mirrors. Looking into a mirror helps kids to be aware of what they look like when they are sad, angry, bored, or disappointed. Then we ask them, “How do you feel when you see a face like that?” We teach them how their brains are built, what emotions are for, and where they are registered in their bodies, and how they can communicate their feelings to the people around them. They learn that their facial muscles give clues about what they are feeling and then experiment with how their facial expressions affect other people.

We also strengthen the brain's watchtower by teaching them to recognize and name their physical sensations. For example, when their chest tightens, that probably means that they are nervous; their breathing becomes shallow and they feel uptight. What does anger feel like, and what can they do to change that sensation in their body? What happens if they take a deep breath or take time out to jump rope or hit a punching bag? Does tapping acupressure points help? We try to provide children, teachers, and other care providers with a toolbox of ways to take charge of their emotional reactions.

To promote reciprocity, we use other mirroring exercises, which are the foundation of safe interpersonal communication. Kids practice imitating one another's facial expressions. They proceed to imitating gestures and sounds and then get up and move in sync. To play well, they have to pay attention to really seeing and hearing one another. Games like Simon Says lead to lots of sniggering and giggling—signs of safety and relaxation. When teenagers balk at these "stupid games," we nod understandingly and enlist their cooperation by asking them to demonstrate games to the little kids, who "need their help."

Teachers and leaders learn that an activity as simple as trying to keep a beach ball in the air as long as possible helps groups become more focused, cohesive, and fun. These are inexpensive interventions. For older children some schools have installed workstations costing less than two hundred dollars where students can play computer games to help them focus and to improve their heart rate variability (HRV) (discussed in chapter 16), just as we do in our own clinic.

Children and adults alike need to experience how rewarding it is to work at the edge of their abilities. Resilience is the product of agency: knowing that what you do can make a difference. Many of us remember what playing team sports, singing in the school choir, or playing in the marching band meant to us, especially if we had coaches or directors who believed in us, pushed us to excel, and taught us we could be better than we thought was possible. The children we reach need this experience.

Athletics, playing music, dancing, and theatrical performances all promote agency and community. They also engage kids in novel challenges and unaccustomed roles. In a devastated postindustrial New England town, my friends Carolyn and Eli Newberger are teaching El Sistema, an orchestral music program that originated in Venezuela. Several of my students run an after-school program in Brazilian capoeira in a high-crime area of Boston, and my colleagues at the Trauma Center continue the Trauma Drama program. Last year I spent three weeks helping two boys prepare a scene from *Julius Caesar*. An effeminate, shy boy was playing Brutus and had to summon up his full force to put down Cassius, played by the class bully, who had to be coached to play a corrupt general begging for mercy. The scene came to life only after the bully talked about his father's violence and his own vow never to show weakness to anyone. (Most bullies have themselves been bullied, and they despise kids who remind them of their own vulnerability.) Brutus's powerful voice, on the other hand, emerged after he realized that he'd made himself invisible to deal with his own family violence.

These intense communal efforts force kids to collaborate, compromise, and stay focused on the task at hand. Tensions often run high, but the kids stick with it because they want to earn the respect of their coaches or directors and don't want to let down the team—all feelings that are opposite to the vulnerability of being subjected to arbitrary abuse, the invisibility of neglect, and the godforsaken isolation of trauma.

Our NCTSN programs are working: Kids become less anxious and emotionally reactive and are less aggressive or withdrawn; they get along better and their school performance improves; their attention deficit,

# FURTHER READING

### FURTHER READING

### DEALING WITH TRAUMATIZED CHILDREN


Blaustein, Margaret, and Kristine Kinniburgh. *Treating Traumatic Stress in Children and Adolescents: How to Foster Resilience through Attachment, Self-Regulation, and Competency.* New York: Guilford, 2012.

Hughes, Daniel. *Building the Bonds of Attachment.* New York: Jason Aronson, 2006.

Perry, Bruce, and Maia Szalavitz. *The Boy Who Was Raised as a Dog: And Other Stories from a Child Psychiatrist's Notebook.* New York: Basic Books, 2006.

Terr, Lenore. *Too Scared to Cry: Psychic Trauma in Childhood.* Basic Books, 2008.

Terr, Lenore C. *Working with Children to Heal Interpersonal Trauma: The Power of Play.* Ed., Eliana Gil. New York: Guilford Press, 2011.

Saxe, Glenn, Heidi Ellis, and Julie Kaplow. *Collaborative Treatment of Traumatized Children and Teens: The Trauma Systems Therapy Approach.* New York: Guilford Press, 2006.

Lieberman, Alicia, and Patricia van Horn. *Psychotherapy with Infants and Young Children: Repairing the Effects of Stress and Trauma on Early Attachment.* New York: Guilford Press, 2011.


### PSYCHOTHERAPY


Siegel, Daniel J. *Mindsight: The New Science of Personal Transformation.* New York: Norton, 2010.

Fosha D., M. Solomon, and D. J. Siegel. *The Healing Power of Emotion: Affective Neuroscience, Development and Clinical Practice* (Norton Series on Interpersonal Neurobiology). New York: Norton, 2009.

Siegel, D., and M. Solomon: *Healing Trauma: Attachment, Mind, Body and Brain*

(Norton Series on Interpersonal Neurobiology). New York: Norton, 2003.
Courtois, Christine, and Julian Ford. *Treating Complex Traumatic Stress Disorders (Adults): Scientific Foundations and Therapeutic Models.* New York: Guilford, 2013.
Herman, Judith. *Trauma and Recovery: The Aftermath of Violence—from Domestic Abuse to Political Terror.* New York: Basic Books, 1992.

**NEUROSCIENCE OF TRAUMA**

Panksepp, Jaak, and Lucy Biven. *The Archaeology of Mind: Neuroevolutionary Origins of Human Emotions* (Norton Series on Interpersonal Neurobiology). New York: Norton, 2012.
Davidson, Richard, and Sharon Begley. *The Emotional Life of Your Brain: How Its Unique Patterns Affect the Way You Think, Feel, and Live—and How You Can Change Them.* New York: Hachette, 2012.
Porges, Stephen. *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-regulation* (Norton Series on Interpersonal Neurobiology). New York: Norton, 2011.
Fogel, Alan. *Body Sense: The Science and Practice of Embodied Self-Awareness* (Norton Series on Interpersonal Neurobiology). New York: Norton, 2009.
Shore, Allan N. *Affect Regulation and the Origin of the Self: The Neurobiology of Emotional Development.* New York: Psychology Press, 1994.
Damasio, Antonio R. *The Feeling of What Happens: Body and Emotion in the Making of Consciousness.* Houghton Mifflin Harcourt, 2000.

**BODY-ORIENTED APPROACHES**

Cozzolino, Louis. *The Neuroscience of Psychotherapy: Healing the Social Brain*, second edition (Norton Series on Interpersonal Neurobiology). New York: Norton, 2010.
Ogden, Pat, and Kekuni Minton. *Trauma and the Body: A Sensorimotor Approach to Psychotherapy* (Norton Series on Interpersonal Neurobiology). New York: Norton, 2008.
Levine, Peter A. *In an Unspoken Voice: How the Body Releases Trauma and Restores Goodness.* Berkeley: North Atlantic, 2010.

Levine, Peter A., and Ann Frederic. *Waking the Tiger: Healing Trauma.* Berkeley: North Atlantic, 2012

Curran, Linda. *101 Trauma-Informed Interventions: Activities, Exercises and Assignments to Move the Client and Therapy Forward.* PESI, 2013.

**EMDR**

Parnell, Laura. *Attachment-Focused EMDR: Healing Relational Trauma.* New York: Norton, 2013.

Shapiro, Francine. *Getting Past Your Past: Take Control of Your Life with Self-Help Techniques from EMDR Therapy.* Emmaus, PA: Rodale, 2012.

Shapiro, Francine, and Margot Silk Forrest. *EMDR: The Breakthrough "Eye Movement" Therapy for Overcoming Anxiety, Stress, and Trauma.* New York: Basic Books, 2004.

**WORKING WITH DISSOCIATION**

Schwartz, Richard C. *Internal Family Systems Therapy* (The Guilford Family Therapy Series). New York: Guilford, 1997.

O. van der Hart, E. R. Nijenhuis, and F. Steele. *The Haunted Self: Structural Dissociation and the Treatment of Chronic Traumatization.* New York: Norton, 2006.

**COUPLES**

Gottman, John. *The Science of Trust: Emotional Attunement for Couples.* New York: Norton, 2011.

**YOGA**

Emerson, David, and Elizabeth Hopper. *Overcoming Trauma through Yoga: Reclaiming Your Body.* Berkeley: North Atlantic, 2012.

Cope, Stephen. *Yoga and the Quest for the True Self.* New York: Bantam Books, 1999.

**NEUROFEEDBACK**

Fisher, Sebern. *Neurofeedback in the Treatment of Developmental Trauma: Calming the Fear-Driven Brain.* New York: Norton, 2014.

Demos, John N. *Getting Started with Neurofeedback.* New York: Norton, 2005.

Evans, James R. *Handbook of Neurofeedback: Dynamics and Clinical Applications.* CRC Press, 2013.

**PHYSICAL EFFECTS OF TRAUMA**



Mate, Gabor. *When the Body Says No: Understanding the Stress-Disease Connection.* New York: Random House, 2011.

Sapolsky, Robert. *Why Zebras Don't Get Ulcers: The Acclaimed Guide to Stress, Stress-Related Diseases, and Coping.* New York: Macmillan, 2004.

**MEDITATION AND MINDFULNESS**

Zinn, Jon Kabat, and Thich Nat Hanh. *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness,* revised edition. New York: Random House, 2009.

# ACKNOWLEDGMENTS

**ACKNOWLEDGMENTS**

This book is the fruit of thirty years of trying to understand how people deal with, survive, and heal from traumatic experiences. Thirty years of clinical work with traumatized men, women and children; innumerable discussions with colleagues and students, and participation in the evolving science about how mind, brain, and body deal with, and recover from, overwhelming experiences.

Let me start with the people who helped me organize, and eventually publish, this book. Toni Burbank, my editor, with whom I communicated many times each week over a two-year period about the scope, organization, and specific contents of the book. Toni truly understood what this book is about, and that understanding has been critical in defining its form and substance. My agent, Brettne Bloom, understood the importance of this work, found a home for it with Viking, and provided critical support at critical moments. Rick Kot, my editor at Viking, supplied invaluable feedback and editorial guidance.

My colleagues and students at the Trauma Center have provided the feeding ground, laboratory, and support system for this work. They also have been constant reminders of the sober reality of our work for these three decades. I cannot name them all, but Joseph Spinazzola, Margaret Blaustein, Roslin Moore, Richard Jacobs, Liz Warner, Wendy D’Andrea, Jim Hopper, Fran Grossman, Alex Cook, Marla Zucker, Kevin Becker, David Emerson, Steve Gross, Dana Moore, Robert Macy, Liz Rice-Smith, Patty Levin, Nina Murray, Mark Gapen, Carrie Pekor, Debbie Korn, and Betta de Boer van der Kolk all have been critical collaborators. And of course Andy Pond and Susan Wayne of the Justice Resource Institute.

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Peter Levine, Pat Ogden, and Al Pesso read my paper on the importance of the body in traumatic stress back in 1994 and then offered to teach me about the body. I am still learning from them, and that learning has since then been expanded by yoga and meditation teachers Stephen Cope, Jon Kabat-Zinn, and Jack Kornfield.

Sebern Fisher first taught me about neurofeedback. Ed Hamlin and Larry Hirshberg later expanded that understanding. Richard Schwartz taught me internal family systems (IFS) therapy and assisted in helping to write the chapter on IFS. Kippy Dewey and Cissa Campion introduced me to theater, Tina Packer tried to teach me how to do it, and Andrew Borthwick-Leslie provided critical details.

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Licia Sky created the environment that allowed me to concentrate on writing this book; she provided invaluable feedback on each one of the chapters; she donated her artistic gifts to many illustrations; and she contributed to sections on body awareness and clinical case material. My trusty secretary, Angela Lin, took care of multiple crises and kept the ship running at full speed. Ed and Edith Schonberg often provided a shelter from the storm; Barry and Lorrie Goldensohn served as literary critics and inspiration; and my children, Hana and Nicholas, showed me that every new generation lives in a world that is radically different from the previous one, and that each life is unique—a creative act by its owner that defies explanation by genetics, environment, or culture

alone.

Finally, my patients, to whom I dedicate this book—I wish I could mention you all by name—who taught me almost everything I know—



# NOTES

NOTES

PROLOGUE

1. V. Felitti, et al. “Relationship of Childhood Abuse and Household Dysfunction to Many of the
Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study.” American Journal of Preventive Medicine 14, no. 4 (1998): 245–58.

CHAPTER 1: LESSONS FROM VIETNAM VETERANS

1. A. Kardiner, The Traumatic Neuroses of War (New York: P. Hoeber, 1941). Later I discovered
that numerous textbooks on war trauma were published around both the First and Second World
Wars, but as Abram Kardiner wrote in 1947: “The subject of neurotic disturbances consequent
upon war has, in the past 25 years, been submitted to a good deal of capriciousness in public
interest and psychiatric whims. The public does not sustain its interest, which was very great
after World War I, and neither does psychiatry. Hence these conditions are not subject to
continuous study.”

2. Op cit, p. 7.

3. B. A. van der Kolk, “Adolescent Vulnerability to Post Traumatic Stress Disorder,” Psychiatry

48 (1985): 365–70.

4. S. A. Haley, “When the Patient Reports Atrocities: Specific Treatment Considerations of the
Vietnam Veteran,” Archives of General Psychiatry 30 (1974): 191–96.

5. E. Hartmann, B. A. van der Kolk, and M. Olfield, “A Preliminary Study of the Personality of
the Nightmare Sufferer,” American Journal of Psychiatry 138 (1981): 794–97; B. A. van der
Kolk, et al., “Nightmares and Trauma: Life-long and Traumatic Nightmares in Veterans,”
American Journal of Psychiatry 141 (1984): 187–90.

6. B. A. van der Kolk and C. Ducey, “The Psychological Processing of Traumatic Experience:
Rorschach Patterns in PTSD,” Journal of Traumatic Stress 2 (1989): 259–74.

7. Unlike normal memories, traumatic memories are more like fragments of sensations, emotions,
reactions, and images, that keep getting reexperienced in the present. The studies of Holocaust
memories at Yale by Dori Laub and Nanette C. Auerhahn, as well as Lawrence L. Langer’s
book Holocaust Testimonies: The Ruins of Memory, and, most of all, Pierre Janet’s 1889, 1893,
and 1905 descriptions of the nature of traumatic memories helped us organize what we saw.
That work will be discussed in the memory chapter.

8. D. J. Henderson, “Incest,” in Comprehensive Textbook of Psychiatry, eds. A. M. Freedman and
H. I. Kaplan, 2nd ed. (Baltimore: Williams & Wilkins, 1974), 1536.

9. Ibid.

10. K. H. Seal, et al., “Bringing the War Back Home: Mental Health Disorders Among 103,788
U.S. Veterans Returning from Iraq and Afghanistan Seen at Department of Veterans Affairs
Facilities,” Archives of Internal Medicine 167, no. 5 (2007): 476–82; C. W. Hoge, J. L. Auchterlonie, and C. S. Milliken, “Mental Health Problems, Use of Mental Health Services, and
Attrition from Military Service After Returning from Deployment to Iraq or Afghanistan,”
Journal of the American Medical Association 295, no. 9 (2006): 1023–32.

11. D. G. Kilpatrick and B. E. Saunders, Prevalence and Consequences of Child Victimization:
Results from the National Survey of Adolescents: Final Report (Charleston, SC: National Crime
Victims Research and Treatment Center, Department of Psychiatry and Behavioral Sciences,
Medical University of South Carolina 1997).

12. U.S. Department of Health and Human Services, Administration on Children, Youth and
Families, Child Maltreatment 2007, 2009. See also U.S. Department of Health and Human
Services, Administration for Children and Families, Administration on Children, Youth and
Families, Children’s Bureau, Child Maltreatment 2010, 2011.

CHAPTER 2: REVOLUTIONS IN UNDERSTANDING MIND AND BRAIN

1. G. Ross Baker, et al., “The Canadian Adverse Events Study: The Incidence of Adverse Events

among Hospital Patients in Canada," Canadian Medical Association Journal 170, no. 11 (2004):
1678–86; A. C. McFarlane, et al., "Posttraumatic Stress Disorder in a General Psychiatric
Inpatient Population," Journal of Traumatic Stress 14, no. 4 (2001): 633–45; Kim T. Mueser, et
al., "Trauma and Posttraumatic Stress Disorder in Severe Mental Illness," Journal of Consulting
and Clinical Psychology 66, no. 3 (1998): 493; National Trauma Consortium, www.nationaltraumaconsortium.org.

2. E. Bleuler, Dementia Praecox or the Group of Schizophrenias, trans. J. Zinkin (Washington, DC:
International Universities Press, 1950), p. 227.

3. L. Grinspoon, J. Ewalt, and R. I. Shader, "Psychotherapy and Pharmacotherapy in Chronic
Schizophrenia," American Journal of Psychiatry 124, no. 12 (1968): 1645–52. See also L.
Grinspoon, J. Ewalt, and R. I. Shader, Schizophrenia: Psychotherapy and Pharmacotherapy
(Baltimore: Williams and Wilkins, 1972).

4. T. R. Insel, "Neuroscience: Shining Light on Depression," Science 317, no. 5839 (2007): 757–
58. See also C. M. France, P. H. Lysaker, and R. P. Robinson, "The 'Chemical Imbalance'
Explanation for Depression: Origins, Lay Endorsement, and Clinical Implications," Professional
Psychology: Research and Practice 38 (2007): 411–20.

5. B. J. Deacon, and J. J. Lickel, "On the Brain Disease Model of Mental Disorders," Behavior
Therapist 32, no. 6 (2009).

6. J. O. Cole, et al., “Drug Trials in Persistent Dyskinesia (Clozapine),” in Tardive Dyskinesia,
Research and Treatment, ed. R. C. Smith, J. M. Davis, and W. E. Fahn (New York: Plenum,
1979).
7. E. F. Torrey, Out of the Shadows: Confronting America’s Mental Illness Crisis (New York: John
Wiley & Sons, 1997). However, other factors were equally important, such as President Kennedy’s 1963 Community Mental Health Act, in which the federal government took over
paying for mental health care and which rewarded states for treating mentally ill people in the
community.
8. American Psychiatric Association, Committee on Nomenclature. Work Group to Revise DSM-
III. Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Publishing,
1980).
9. S. F. Maier and M. E. Seligman, “Learned Helplessness: Theory and Evidence,” Journal of
Experimental Psychology: General 105, no. 1 (1976): 3. See also M. E. Seligman, S. F. Maier,
and J. H. Geer, “Alleviation of Learned Helplessness in the Dog,” Journal of Abnormal Psychology 73, no. 3 (1968): 256; and R. L. Jackson, J. H. Alexander, and S. F. Maier, “Learned
Helplessness, Inactivity, and Associative Deficits: Effects of Inescapable Shock on Response
Choice Escape Learning,” Journal of Experimental Psychology: Animal Behavior Processes 6,
no. 1 (1980): 1.

10. G. A. Bradshaw and A. N. Schore, “How Elephants Are Opening Doors: Developmental
Neuroethology, Attachment and Social Context,” Ethology 113 (2007): 426–36.
11. D. Mitchell, S. Koleszar, and R. A. Scopatz, “Arousal and T-Maze Choice Behavior in Mice: A
Convergent Paradigm for Neophobia Constructs and Optimal Arousal Theory,” Learning and
Motivation 15 (1984): 287–301. See also D. Mitchell, E. W. Osborne, and M. W. O’Boyle, “Habituation Under Stress: Shocked Mice Show Nonassociative Learning in a T-maze,” Behavioral and Neural Biology 43 (1985): 212–17.
12. B. A. van der Kolk, et al., “Inescapable Shock, Neurotransmitters and Addiction to Trauma:
Towards a Psychobiology of Post Traumatic Stress,” Biological Psychiatry 20 (1985): 414–25.
13. C. Hedges, War Is a Force That Gives Us Meaning (New York: Random House Digital, 2003).
14. B. A. van der Kolk, “The Compulsion to Repeat Trauma: Revictimization, Attachment and
Masochism,” Psychiatric Clinics of North America 12 (1989): 389–411.
15. R. L. Solomon, “The Opponent-Process Theory of Acquired Motivation: The Costs of Pleasure
and the Benefits of Pain,” American Psychologist 35 (1980): 691–712.
16. H. K. Beecher, “Pain in Men Wounded in Battle,” Annals of Surgery 123, no. 1 (January 1946):
96–105.
17. B. A. van der Kolk, et al., “Pain Perception and Endogenous Opioids in Post Traumatic Stress
Disorder,” Psychopharmacology Bulletin 25 (1989): 117–21. See also R. K. Pitman, et al.,
“Naloxone Reversible Stress Induced Analgesia in Post Traumatic Stress Disorder,”

Archives of
General Psychiatry 47 (1990): 541–47; and Solomon, “Opponent-Process Theory of Acquired
Motivation.”
18. J. A. Gray and N. McNaughton, “The Neuropsychology of Anxiety: Reprise,” in Nebraska
Symposium on Motivation (University of Nebraska Press, 1996), 43, 61–134. See also C. G.
DeYoung and J. R. Gray, “Personality Neuroscience: Explaining Individual Differences in Affect, Behavior, and Cognition, in The Cambridge Handbook of Personality Psychology (2009), 323–46.
19. M. J. Raleigh, et al., “Social and Environmental Influences on Blood Serotonin Concentrations
in Monkeys,” Archives of General Psychiatry 41 (1984): 505–10.
20. B. A. van der Kolk, et al., “Fluoxetine in Post Traumatic Stress,” Journal of Clinical Psychiatry (1994): 517–22.
21. For the Rorschach aficionados among you, it reversed the C + CF/FC ratio.
22. Grace E. Jackson, Rethinking Psychiatric Drugs: A Guide for Informed Consent (AuthorHouse, 2005); Robert Whitaker, Anatomy of an Epidemic: Magic Bullets, Psychiatric
Drugs and the Astonishing Rise of Mental Illness in America (New York: Random House, 2011).
23. We will return to this issue in chapter 15, where we discuss our study comparing Prozac with
EMDR, in which EMDR had better long-term results than Prozac in treating depression, at least
in adult onset trauma.
24. J. M. Zito, et al., “Psychotropic Practice Patterns for Youth: A 10-Year Perspective,” Archives
of Pediatrics and Adolescent Medicine 157 (January 2003): 17–25.

25. http://en.wikipedia.org/wiki/List_of_largest_selling_pharmaceutical_products.

26. Lucette Lagnado, “U.S. Probes Use of Antipsychotic Drugs on Children,” Wall Street Journal,
August 11, 2013.

27. Katie Thomas, “J.&J. to Pay $2.2 Billion in Risperdal Settlement,” New York Times, November
4, 2013.

28. M. Olfson, et al., “Trends in Antipsychotic Drug Use by Very Young, Privately Insured
Children,” Journal of the American Academy of Child & Adolescent Psychiatry 49, no.1 (2010):
13–23.

29. M. Olfson, et al., “National Trends in the Outpatient Treatment of Children and Adolescents
with Antipsychotic Drugs,” Archives of General Psychiatry 63, no. 6 (2006): 679.

30. A. J. Hall, et al., “Patterns of Abuse Among Unintentional Pharmaceutical Overdose Fatalities,” Journal of the American Medical Association 300, no. 22 (2008): 2613–20.

31. During the past decade two editors in chief of the most prestigious professional medical journal
in the United States, the New England Journal of Medicine, Dr. Marcia Angell and Dr. Arnold
Relman, have resigned from their positions because of the excessive power of the pharmaceutical industry over medical research, hospitals, and doctors. In a letter to the New
York Times on December 28, 2004, Angell and Relman pointed out that the previous year one
drug company had spent 28 percent of its revenues (more than $6 billion) on marketing and
administrative expenses, while spending only half that on research and development; keeping 30

percent in net income was typical for the pharmaceutical industry. They concluded: “The
medical profession should break its dependence on the pharmaceutical industry and educate its
own.” Unfortunately, this is about as likely as politicians breaking free from the donors that
finance their election campaigns.



CHAPTER 3: LOOKING INTO THE BRAIN: THE NEUROSCIENCE REVOLUTION

1. B. Roozendaal, B. S. McEwen, and S. Chattarji, “Stress, Memory and the Amygdala,” Nature
Reviews Neuroscience 10, no. 6 (2009): 423–33.

2. R. Joseph, The Right Brain and the Unconscious (New York: Plenum Press, 1995).

3. The movie The Assault (based on the novel of the same name by Harry Mulisch), which won the
Oscar for Best Foreign Language Film in 1986, is a good illustration of the power of deep early
emotional impressions in determining powerful passions in adults.

4. This is the essence of cognitive behavioral therapy. See Foa, Friedman, and Keane, 2000
Treatment Guidelines for PTSD.

CHAPTER 4: RUNNING FOR YOUR LIFE: THE ANATOMY OF SURVIVAL

1. R. Sperry, “Changing Priorities,” Annual Review of Neuroscience 4 (1981): 1–15.

2. A. A. Lima, et al., “The Impact of Tonic Immobility Reaction on the Prognosis of Posttraumatic
Stress Disorder,” Journal of Psychiatric Research 44, no. 4 (March 2010): 224–28.

3. P. Janet, L’automatisme psychologique (Paris: Félix Alcan, 1889).

4. R. R. Llinás, I of the Vortex: From Neurons to Self (Cambridge, MA: MIT Press, 2002). See also
R. Carter and C. D. Frith, Mapping the Mind (Berkeley: University of California Press, 1998);

R. Carter, The Human Brain Book (Penguin, 2009); and J. J. Ratey, A User's Guide to the Brain
(New York: Pantheon Books, 2001), 179.

5. B. D. Perry, et al., "Childhood Trauma, the Neurobiology of Adaptation, and Use Dependent
Development of the Brain: How States Become Traits," Infant Mental Health Journal 16, no. 4
(1995): 271–91.



6. I am indebted to my late friend David Servan-Schreiber, who first made this distinction in his
book The Instinct to Heal.

7. E. Goldberg, The Executive Brain: Frontal Lobes and the Civilized Mind (London, Oxford
University Press, 2001).

8. G. Rizzolatti and L. Craighero "The Mirror-Neuron System," Annual Review of Neuroscience
27 (2004): 169–92. See also M. Iacoboni, et al., "Cortical Mechanisms of Human Imitation,"
Science 286, no. 5449 (1999): 2526–28; C. Keysers and V. Gazzola, "Social Neuroscience:
Mirror Neurons Recorded in Humans," Current Biology 20, no. 8 (2010): R353–54; J. Decety
and P. L. Jackson, "The Functional Architecture of Human Empathy," Behavioral and Cognitive
Neuroscience Reviews 3 (2004): 71–100; M. B. Schippers, et al., "Mapping the Information
Flow from One Brain to Another During Gestural Communication," Proceedings of the National Academy of Sciences of the United States of America 107, no. 20 (2010): 9388–93; and
A. N. Meltzoff and J. Decety, "What Imitation Tells Us About Social Cognition: A

Rapprochement Between Developmental Psychology and Cognitive Neuroscience," Philosophical Transactions of the Royal Society, London 358 (2003): 491–500.

9. D. Goleman, Emotional Intelligence (New York: Random House, 2006). See also V. S. Ramachandran, "Mirror Neurons and Imitation Learning as the Driving Force Behind 'the Great Leap Forward' in Human Evolution," Edge (May 31, 2000), http://edge.org/conversation/mirror-neurons-and-imitation-learning-as-the-driving-force-behind-the-great-leap-forward-in-human-evolution (retrieved April 13, 2013).

10. G. M. Edelman, and J. A. Gally, "Reentry: A Key Mechanism for Integration of Brain Function," Frontiers in Integrative Neuroscience 7 (2013).

11. J. LeDoux, "Rethinking the Emotional Brain," Neuron 73, no. 4 (2012): 653–76. See also J. S. Feinstein, et al., "The Human Amygdala and the Induction and Experience of Fear," Current Biology 21, no. 1 (2011): 34–38.

12. The medial prefrontal cortex is the middle part of the brain (neuroscientists call them "the midline structures"). This area of the brain comprises a conglomerate of related structures: the orbito-prefrontal cortex, the inferior and dorsal medial prefrontal cortex, and a large structure called the anterior cingulate, all of which are involved in monitoring the internal state of the organism and selecting the appropriate response. See, e.g., D. Diorio, V. Viau, and M. J. Meaney, "The Role of the Medial Prefrontal Cortex (Cingulate Gyrus) in the Regulation of Hypothalamic-Pituitary-Adrenal Responses to Stress," Journal of Neuroscience 13, no. 9 (September 1993): 3839–47; J. P. Mitchell, M. R. Banaji, and C. N. Macrae, "The Link Between

Social Cognition and Self-Referential Thought in the Medial Prefrontal Cortex," Journal of
Cognitive Neuroscience 17, no. 8. (2005): 1306–15; A. D'Argembeau, et al., "Valuing One's
Self: Medial Prefrontal Involvement in Epistemic and Emotive Investments in Self-Views,"
Cerebral Cortex 22 (March 2012): 659–67; M. A. Morgan, L. M. Romanski, J. E. LeDoux,
"Extinction of Emotional Learning: Contribution of Medial Prefrontal Cortex," Neuroscience
Letters 163 (1993):109–13; L. M. Shin, S. L. Rauch, and R. K. Pitman, "Amygdala, Medial
Prefrontal Cortex, and Hippocampal Function in PTSD," Annals of the New York Academy of
Sciences 1071, no. 1 (2006): 67–79; L. M. Williams, et al., "Trauma Modulates Amygdala and
Medial Prefrontal Responses to Consciously Attended Fear," Neuroimage, 29, no. 2 (2006):
347–57; M. Koenig and J. Grafman, "Posttraumatic Stress Disorder: The Role of Medial
Prefrontal Cortex and Amygdala," Neuroscientist 15, no. 5 (2009): 540–48; and M. R. Milad, I.
Vidal-Gonzalez, and G. J. Quirk, "Electrical Stimulation of Medial Prefrontal Cortex Reduces
Conditioned Fear in a Temporally Specific Manner," Behavioral Neuroscience 118, no. 2
(2004): 389.

13. B. A. van der Kolk, "Clinical Implications of Neuroscience Research in PTSD," Annals of the
New York Academy of Sciences 1071 (2006): 277–93.

14. P. D. MacLean, The Triune Brain in Evolution: Role in Paleocerebral Functions (New York,
Springer, 1990).

15. Ute Lawrence, The Power of Trauma: Conquering Post Traumatic Stress Disorder, iUniverse,
2009.
16. Rita Carter and Christopher D. Frith, Mapping the Mind (Berkeley: University of California
Press, 1998). See also A. Bechara, et al., “Insensitivity to Future Consequences Following

Damage to Human Prefrontal Cortex,” Cognition 50, no. 1 (1994): 7–15; A. Pascual-Leone, et
al., “The Role of the Dorsolateral Prefrontal Cortex in Implicit Procedural Learning,”
Experimental Brain Research 107, no. 3 (1996): 479–85; and S. C. Rao, G. Rainer, and E. K.
Miller, “Integration of What and Where in the Primate Prefrontal Cortex,” Science 276, no.
5313 (1997): 821–24.
17. H. S. Duggal, “New-Onset PTSD After Thalamic Infarct,” American Journal of Psychiatry
159, no. 12 (2002): 2113-a. See also R. A. Lanius, et al., “Neural Correlates of Traumatic
Memories in Posttraumatic Stress Disorder: A Functional MRI Investigation,” American
Journal of Psychiatry 158, no. 11 (2001): 1920–22; and I. Liberzon, et al., “Alteration of
Corticothalamic Perfusion Ratios During a PTSD Flashback,” Depression and Anxiety 4, no. 3
(1996): 146–50.
18. R. Noyes Jr. and R. Kletti, “Depersonalization in Response to Life-Threatening Danger,”
Comprehensive Psychiatry 18, no. 4 (1977): 375–84. See also M. Sierra, and G. E. Berrios,
“Depersonalization: Neurobiological Perspectives,” Biological Psychiatry 44, no. 9 (1998):

898–908.

19. D. Church, et al., “Single-Session Reduction of the Intensity of Traumatic Memories in Abused

Adolescents After EFT: A Randomized Controlled Pilot Study,” Traumatology 18, no. 3 (2012):

73–79; and D. Feinstein and D. Church, “Modulating Gene Expression Through Psychotherapy:



The Contribution of Noninvasive Somatic Interventions,” Review of General Psychology 14, no.

4 (2010): 283–95. See also www.vetcases.com.

CHAPTER 5: BODY-BRAIN CONNECTIONS

1. C. Darwin, The Expression of the Emotions in Man and Animals (London: Oxford University

Press, 1998).

2. Ibid., 71.

3. Ibid.

4. Ibid., 71–72.

5. P. Ekman, Facial Action Coding System: A Technique for the Measurement of Facial Movement

(Palo Alto, CA: Consulting Psychologists Press, 1978). See also C. E. Izard, The Maximally

Discriminative Facial Movement Coding System (MAX) (Newark, DE: University of Delaware

Instructional Resource Center, 1979).

6. S. W. Porges, The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment,

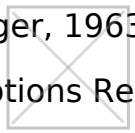
Communication, and Self-Regulation, Norton Series on Interpersonal Neurobiology (New York:

WW Norton & Company, 2011).

7. This is Stephen Porges’s and Sue Carter’s name for the ventral vagal system.

http://www.pesi.com/bookstore/A_Neural_Love_Code__The_Body_s_Need_to_Engage_and_Bond-details.aspx

8. S. S. Tomkins, Affect, Imagery, Consciousness (vol. 1, The Positive Affects) (New York:
Springer, 1962); S. S. Tomkin, Affect, Imagery, Consciousness (vol. 2, The Negative Affects)
(New York: Springer, 1963).



9. P. Ekman, Emotions Revealed: Recognizing Faces and Feelings to Improve Communication and
Emotional Life (New York: Macmillan, 2007); P. Ekman, The Face of Man: Expressions of
Universal Emotions in a New Guinea Village (New York: Garland STPM Press, 1980).

10. See, e.g., B. M. Levinson, “Human/Companion Animal Therapy,” Journal of Contemporary
Psychotherapy 14, no. 2 (1984): 131–44; D. A. Willis, “Animal Therapy,” Rehabilitation
Nursing 22, no. 2 (1997): 78–81; and A. H. Fine, ed., Handbook on Animal-Assisted Therapy:
Theoretical Foundations and Guidelines for Practice (Academic Press, 2010).

11. P. Ekman, R. W. Levenson, and W. V. Friesen, “Autonomic Nervous System Activity
Distinguishes Between Emotions,” Science 221 (1983): 1208–10.

12. J. H. Jackson, “Evolution and Dissolution of the Nervous System,” in Selected Writings of
John Hughlings Jackson, ed. J. Taylor (London: Stapes Press, 1958), 45–118.

13. Porges pointed out this pet store analogy to me.

14. S. W. Porges, J. A. Doussard-Roosevelt, and A. K. Maiti, “Vagal Tone and the Physiological
Regulation of Emotion,” in The Development of Emotion Regulation: Biological and Behavioral
Considerations, ed. N. A. Fox, Monographs of the Society for Research in Child Development,

vol. 59 (2–3, serial no. 240) (1994), 167–86. http://www.amazon.com/The-Development-
Emotion-Regulation-Considerations/dp/0226259404).
15. V. Felitti, et al., “Relationship of Childhood Abuse and Household Dysfunction to Many of the
Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study,” American Journal of Preventive Medicine 14, no. 4 (1998): 245–58.
16. S. W. Porges, “Orienting in a Defensive World: Mammalian Modifications of Our Evolutionary Heritage: A Polyvagal Theory,” Psychophysiology 32 (1995): 301–18.
17. B. A. Van der Kolk, “The Body Keeps the Score: Memory and the Evolving Psychobiology of
Posttraumatic Stress,” Harvard Review of Psychiatry 1, no. 5 (1994): 253–65.
CHAPTER 6: LOSING YOUR BODY, LOSING YOUR SELF
1. K. L. Walsh, et al., “Resiliency Factors in the Relation Between Childhood Sexual Abuse and
Adulthood Sexual Assault in College-Age Women,” Journal of Child Sexual Abuse 16, no. 1
(2007): 1–17.
2. A. C. McFarlane, “The Long-Term Costs of Traumatic Stress: Intertwined Physical and Psychological Consequences,” World Psychiatry 9, no. 1 (2010): 3–10.
3. W. James, “What Is an Emotion?” Mind 9: 188–205.
4. R. L. Bluhm, et al., “Alterations in Default Network Connectivity in Posttraumatic Stress
Disorder Related to Early-Life Trauma,” Journal of Psychiatry & Neuroscience 34, no. 3 (2009): 187. See also J. K. Daniels, et al., “Switching Between Executive and Default Mode
Networks in Posttraumatic Stress Disorder: Alterations in Functional Connectivity,” Journal of
Psychiatry & Neuroscience 35, no. 4 (2010): 258.
5. A. Damasio, The Feeling of What Happens: Body and Emotion in the Making of

Consciousness

(New York: Hartcourt Brace, 1999). Damasio actually says, “Consciousness was invented so

that we could know life”, p. 31.

6. Damasio, Feeling of What Happens, p. 28.

7. Ibid., p. 29.

8. A. Damasio, Self Comes to Mind: Constructing the Conscious Brain (New York, Random

House Digital, 2012), 17.

9. Damasio, Feeling of What Happens, p. 256.

10. Antonio R. Damasio, et al., “Subcortical and Cortical Brain Activity During the Feeling of

Self-Generated Emotions.” Nature Neuroscience 3, vol. 10 (2000): 1049–56.

11. A. A. T. S. Reinders, et al., “One Brain, Two Selves,” NeuroImage 20 (2003): 2119–25. See

also E. R. S. Nijenhuis, O. Van der Hart, and K. Steele, “The Emerging Psychobiology of Trauma-Related Dissociation and Dissociative Disorders,” in Biological Psychiatry, vol. 2., eds.

H. A. H. D’Haenen, J. A. den Boer, and P. Willner (West Sussex, UK: Wiley 2002), 1079–198;

J. Parvizi and A. R. Damasio, “Consciousness and the Brain Stem,” Cognition 79 (2001): 135–

59; F. W. Putnam, “Dissociation and Disturbances of Self,” in Dysfunctions of the Self, vol. 5,

eds. D. Cicchetti and S. L. Toth (New York: University of Rochester Press, 1994), 251–65; and

F. W. Putnam, Dissociation in Children and Adolescents: A Developmental Perspective (New

York: Guilford, 1997).

12. A. D’Argembeau, et al., “Distinct Regions of the Medial Prefrontal Cortex Are

Associated
with Self-Referential Processing and Perspective Taking," Journal of Cognitive Neuroscience
19, no. 6 (2007): 935–44. See also N. A. Farb, et al., "Attending to the Present: Mindfulness
Meditation Reveals Distinct Neural Modes of Self-Reference," Social Cognitive and Affective
Neuroscience 2, no. 4 (2007): 313–22; and B. K. Hölzel, et al., "Investigation of Mindfulness
Meditation Practitioners with Voxel-Based Morphometry," Social Cognitive and Affective
Neuroscience 3, no. 1 (2008): 55–61.

13. P. A. Levine, Healing Trauma: A Pioneering Program for Restoring the Wisdom of Your Body
(Berkeley: North Atlantic Books, 2008); and P. A. Levine, In an Unspoken Voice: How the Body
Releases Trauma and Restores Goodness (Berkeley: North Atlantic Books, 2010).

14. P. Ogden and K. Minton, "Sensorimotor Psychotherapy: One Method for Processing Traumatic
Memory," Traumatology 6, no. 3 (2000): 149–73; and P. Ogden, K. Minton, and C. Pain, Trauma and the Body: A Sensorimotor Approach to Psychotherapy, Norton Series on Interpersonal Neurobiology (New York: WW Norton & Company, 2006).

15. D. A. Bakal, Minding the Body: Clinical Uses of Somatic Awareness (New York: Guilford
Press, 2001).

16. There are innumerable studies on the subject. A small sample for further study: J. Wolfe, et al.,
"Posttraumatic Stress Disorder and War-Zone Exposure as Correlates of Perceived Health in
Female Vietnam War Veterans," Journal of Consulting and Clinical Psychology 62, no. 6

(1994): 1235–40; L. A. Zoellner, M. L. Goodwin, and E. B. Foa, “PTSD Severity and Health
Perceptions in Female Victims of Sexual Assault,” Journal of Traumatic Stress 13, no. 4 (2000):
635–49; E. M. Sledjeski, B. Speisman, and L. C. Dierker, “Does Number of Lifetime Traumas
Explain the Relationship Between PTSD and Chronic Medical Conditions? Answers from the
National Comorbidity Survey-Replication (NCS-R),” Journal of Behavioral Medicine 31
(2008): 341–49; J. A. Boscarino, “Posttraumatic Stress Disorder and Physical Illness: Results
from Clinical and Epidemiologic Studies,” Annals of the New York Academy of Sciences 1032
(2004): 141–53; M. Cloitre, et al., “Posttraumatic Stress Disorder and Extent of Trauma
Exposure as Correlates of Medical Problems and Perceived Health Among Women with
Childhood Abuse,” Women & Health 34, no. 3 (2001): 1–17; D. Lauterbach, R. Vora, and M.
Rakow, “The Relationship Between Posttraumatic Stress Disorder and Self-Reported Health
Problems,” Psychosomatic Medicine 67, no. 6 (2005): 939–47; B. S. McEwen, “Protective and
Damaging Effects of Stress Mediators,” New England Journal of Medicine 338, no. 3 (1998):
171–79; P. P. Schnurr and B. L. Green, Trauma and Health: Physical Health Consequences of
Exposure to Extreme Stress (Washington, DC: American Psychological Association, 2004).

17. P. K. Trickett, J. G. Noll, and F. W. Putnam, “The Impact of Sexual Abuse on Female
Development: Lessons from a Multigenerational, Longitudinal Research Study,” Development

and Psychopathology 23, no. 2 (2011): 453.
18. K. Kosten and F. Giller Jr., ”Alexithymia as a Predictor of Treatment Response in Post-
Traumatic Stress Disorder,” Journal of Traumatic Stress 5, no. 4 (October 1992): 563–73.
19. G. J. Taylor and R. M. Bagby, “New Trends in Alexithymia Research,” Psychotherapy and
Psychosomatics 73, no. 2 (2004): 68–77.
20. R. D. Lane, et al., “Impaired Verbal and Nonverbal Emotion Recognition in Alexithymia,”
Psychosomatic Medicine 58, no. 3 (1996): 203–10.
21. H. Krystal and J. H. Krystal, Integration and Self-Healing: Affect, Trauma, Alexithymia (New
York: Analytic Press, 1988).
22. P. Frewen, et al., “Clinical and Neural Correlates of Alexithymia in Posttraumatic Stress
Disorder,” Journal of Abnormal Psychology 117, no. 1 (2008): 171–81.
23. D. Finkelhor, R. K. Ormrod, and H. A. Turner, (2007). “Re-Victimization Patterns in a National Longitudinal Sample of Children and Youth,” Child Abuse & Neglect 31, no. 5 (2007):
479-502; J. A. Schumm, S. E. Hobfoll, and N. J. Keogh, “Revictimization and Interpersonal
Resource Loss Predicts PTSD Among Women in Substance-Use Treatment, Journal of Traumatic Stress, 17, no. 2 (2004): 173–81; J. D. Ford, J. D. Elhai, D. F. Connor, and B. C.
Frueh, “Poly-Victimization and Risk of Posttraumatic, Depressive, and Substance Use Disorders
and Involvement in Delinquency in a National Sample of Adolescents,” Journal of Adolescent
Health, 46, no. 6 (2010): 545–52.

24. P. Schilder, “Depersonalization,” in Introduction to a Psychoanalytic Psychiatry, no. 50 (New
York: International Universities Press, 196), p. 120.
25. S. Arzy, et al., “Neural Mechanisms of Embodiment: Asomatognosia Due to Premotor Cortex
Damage,” Archives of Neurology 63, no. 7 (2006): 1022–25. See also S. Arzy et al., “Induction
of an Illusory Shadow Person,” Nature 443, no. 7109 (2006): 287; S. Arzy et al., “Neural Basis
of Embodiment: Distinct Contributions of Temporoparietal Junction and Extrastriate Body
Area,” Journal of Neuroscience 26, no. 31 (2006): 8074–81; O. Blanke et al., “Out-of-Body
Experience and Autoscopy of Neurological Origin,” Brain 127, part 2 (2004): 243–58; and M.
Sierra, et al., “Unpacking the Depersonalization Syndrome: An Exploratory Factor Analysis on
the Cambridge Depersonalization Scale,” Psychological Medicine 35 (2005): 1523–32.
26. A. A. T. Reinders, et al., “Psychobiological Characteristics of Dissociative Identity Disorder: A
Symptom Provocation Study,” Biological Psychiatry 60, no. 7 (2006): 730–40.
27. In his book Focusing, Eugene Gendlin coined the term “felt sense”: “A felt sense is not a
mental experience but a physical one. A bodily awareness of a situation or person or event;
Focusing (New York, Random House Digital, 1982).
28. C. Steuwe, et al., “Effect of Direct Eye Contact in PTSD Related to Interpersonal Trauma: An
fMRI Study of Activation of an Innate Alarm System,” Social Cognitive and Affective
Neuroscience 9, no. 1 (January 2012): 88–97.

## CHAPTER 7: GETTING ON THE SAME WAVELENGTH, ATTACHMENT AND ATTUNEMENT

1. N. Murray, E. Koby, and B. van der Kolk, “The Effects of Abuse on Children’s Thoughts,”
chapter 4 in Psychological Trauma (Washington, DC: American Psychiatric Press, 1987).

2. The attachment researcher Mary Main told six-year-olds a story about a child whose mother had

gone away and asked them to make up a story of what happened next. Most six-year-olds who,
as infants, had been found to have secure relationships with their mothers made up some
imaginative tale with a good ending, while the kids who five years earlier had been classified as
having a disorganized attachment relationship had a tendency toward catastrophic fantasies and
often gave frightened responses like “The parents will die” or “The child will kill herself.” In
Mary Main, Nancy Kaplan, and Jude Cassidy. “Security in Infancy, Childhood, and Adulthood:
A Move to the Level of Representation,” Monographs of the Society for Research in Child
Development (1985).

3. J. Bowlby, Attachment and Loss, vol. 1, Attachment (New York Random House, 1969); J.
Bowlby, Attachment and Loss, vol. 2, Separation: Anxiety and Anger (New York: Penguin,
1975); J. Bowlby, Attachment and Loss, vol. 3, Loss: Sadness and Depression (New York:
Basic, 1980); J. Bowlby, “The Nature of the Child’s Tie to His Mother 1,” International

Journal

of Psycho-Analysis, 1958, 39, 350–73.

4. C. Trevarthen, “Musicality and the Intrinsic Motive Pulse: Evidence from Human Psychobiology and Rhythms, Musical Narrative, and the Origins of Human Communication,”

Muisae Scientiae, special issue, 1999, 157–213.

5. A. Gopnik and A. N. Meltzoff, Words, Thoughts, and Theories (Cambridge: MIT Press, 1997);



A. N. Meltzoff and M. K. Moore, “Newborn Infants Imitate Adult Facial Gestures,” Child Development 54, no. 3 (June 1983): 702–9; A. Gopnik, A. N. Meltzoff, and P. K. Kuhl, The

Scientist in the Crib: Minds, Brains, and How Children Learn (New York: HarperCollins, 2009).

6. E. Z. Tronick, “Emotions and Emotional Communication in Infants,” American Psychologist 44,

no. 2 (1989): 112. See also E. Tronick, The Neurobehavioral and Social-Emotional Development of Infants and Children (New York, WW Norton & Company, 2007); E. Tronick

and M. Beeghly, “Infants’ Meaning-Making and the Development of Mental Health Problems,”

American Psychologist 66, no. 2 (2011): 107; and A. V. Sravish, et al., “Dyadic Flexibility

During the Face-to-Face Still-Face Paradigm: A Dynamic Systems Analysis of Its Temporal

Organization,” Infant Behavior and Development 36, no. 3 (2013): 432–37.

7. M. Main, “Overview of the Field of Attachment,” Journal of Consulting and Clinical Psychology 64, no. 2 (1996): 237–43.

8. D. W. Winnicott, Playing and Reality (New York: Psychology Press, 1971). See also D. W.

Winnicott, “The Maturational Processes and the Facilitating Environment,” (1965); and

D. W.
Winnicott, Through Paediatrics to Psycho-analysis: Collected Papers (New York: Brunner/Mazel, 1975).
9. As we saw in chapter 6, and as Damasio has demonstrated, this sense of inner reality is, at least
in part, rooted in the insula, the brain structure that plays a central role in body-mind communication, a structure that is often impaired in people with histories of chronic trauma.
10. D. W. Winnicott, Primary Maternal Preoccupation (London: Tavistock, 1956), 300–305.
11. S. D. Pollak, et al., “Recognizing Emotion in Faces: Developmental Effects of Child Abuse
and Neglect,” Developmental Psychology 36, no. 5 (2000): 679.
12. P. M. Crittenden, “IV Peering into the Black Box: An Exploratory Treatise on the Development
of Self in Young Children,” Disorders and Dysfunctions of the Self 5 (1994): 79; P. M. Crittenden, and A. Landini, Assessing Adult Attachment: A Dynamic-Maturational Approach to
Discourse Analysis (New York: WW Norton & Company, 2011).
13. Patricia M. Crittenden, “Children’s Strategies for Coping with Adverse Home Environments:
An Interpretation Using Attachment Theory,” Child Abuse & Neglect 16, no. 3 (1992): 329–43.
14. Main, 1990, op cit.
15. Main, 1990, op cit.
16. Ibid.
17. E. Hesse, and M. Main, “Frightened, Threatening, and Dissociative Parental Behavior in Low-
Risk Samples: Description, Discussion, and Interpretations,” Development and Psychopathology

18, no. 2 (2006): 309–343. See also E. Hesse and M. Main, “Disorganized Infant, Child, and
Adult Attachment: Collapse in Behavioral and Attentional Strategies,” Journal of the American
Psychoanalytic Association 48, no. 4 (2000): 1097–127.

18. Main, “Overview of the Field of Attachment,” op cit.

19. Hesse and Main, 1995, op cit, p. 310.

20. We looked at this from a biological point of view when we discussed “immobilization without
fear” in chapter 5. S. W. Porges, “Orienting in a Defensive World: Mammalian Modifications of
Our Evolutionary Heritage: A Polyvagal Theory,” Psychophysiology 32 (1995): 301–318.

21. M. H. van Ijzendoorn, C. Schuengel, and M. Bakermans-Kranenburg, “Disorganized Attachment in Early Childhood: Meta-analysis of Precursors, Concomitants, and Sequelae,”
Development and Psychopathology 11 (1999): 225–49.

22. Ijzendoorn, op cit.

23. N. W. Boris, M. Fueyo, and C. H. Zeanah, “The Clinical Assessment of Attachment in Children Under Five,” Journal of the American Academy of Child & Adolescent Psychiatry, 36,
no. 2 (1997): 291–93; K. Lyons-Ruth, “Attachment Relationships Among Children with Aggressive Behavior Problems: The Role of Disorganized Early Attachment Patterns,” Journal
of Consulting and Clinical Psychology, 64, no. 1 (1996), 64.

24. Stephen W. Porges, et al., “Infant Regulation of the Vagal ‘Brake’ Predicts Child Behavior
Problems: A Psychobiological Model of Social Behavior,” Developmental Psychobiology 29,
no. 8 (1996): 697–712.

25. Louise Hertsgaard, et al., “Adrenocortical Responses to the Strange Situation in

Infants with
Disorganized/Disoriented Attachment Relationships," Child Development 66, no. 4 (1995):
1100–6; Gottfried Spangler, and Klaus E. Grossmann, "Biobehavioral Organization in Securely
and Insecurely Attached Infants," Child Development 64, no. 5 (1993): 1439–50.
26. Main and Hesse, 1990, op cit.
27. M. H. van Ijzendoorn, et al., "Disorganized Attachment in Early Childhood," op cit.
28. B. Beebe, and F. M. Lachmann, Infant Research and Adult Treatment: Co-constructing
Interactions (New York: Routledge, 2013); B. Beebe, F. Lachmann, and J. Jaffe (1997). Mother-
Infant Interaction Structures and Presymbolic Self- and Object Representations. Psychoanalytic
Dialogues, 7, no. 2 (1997): 133–82.
29. R. Yehuda, et al., "Vulnerability to Posttraumatic Stress Disorder in Adult Offspring of
Holocaust Survivors," American Journal of Psychiatry 155, no. 9 (1998): 1163–71. See also R.
Yehuda, et al., "Relationship Between Posttraumatic Stress Disorder Characteristics of
Holocaust Survivors and Their Adult Offspring," American Journal of Psychiatry 155, no. 6
(1998): 841–43; R. Yehuda, et al., "Parental Posttraumatic Stress Disorder as a Vulnerability
Factor for Low Cortisol Trait in Offspring of Holocaust Survivors," Archives of General
Psychiatry 64, no. 9 (2007): 1040 and R. Yehuda, et al., "Maternal, Not Paternal, PTSD Is
Related to Increased Risk for PTSD in Offspring of Holocaust Survivors," Journal of
Psychiatric Research 42, no. 13 (2008): 1104–11.
30. R. Yehuda, et al., "Transgenerational Effects of PTSD in Babies of Mothers Exposed

to the
WTC Attacks During Pregnancy,” Journal of Clinical Endocrinology and Metabolism 90 (2005): 4115–18.
31. G. Saxe, et al., “Relationship Between Acute Morphine and the Course of PTSD in Children
with Burns,” Journal of the American Academy of Child & Adolescent Psychiatry 40, no. 8
(2001): 915–21. See also G. N. Saxe, et al., “Pathways to PTSD, Part I: Children with Burns,”
American Journal of Psychiatry 162, no. 7 (2005): 1299–304.
32. C. M. Chemtob, Y. Nomura, and R. A. Abramovitz, “Impact of Conjoined Exposure to the
World Trade Center Attacks and to Other Traumatic Events on the Behavioral Problems of
Preschool Children,” Archives of Pediatrics and Adolescent Medicine 162, no. 2 (2008): 126.
See also P. J. Landrigan, et al., “Impact of September 11 World Trade Center Disaster on
Children and Pregnant Women,” Mount Sinai Journal of Medicine 75, no. 2 (2008): 129–34.
33. D. Finkelhor, R. K. Ormrod, and H. A. Turner, “Polyvictimization and Trauma in a National
Longitudinal Cohort,” Development and Psychopathology 19, no. 1 (2007): 149–66; J. D. Ford,
et al., “Poly-victimization and Risk of Posttraumatic, Depressive, and Substance Use Disorders
and Involvement in Delinquency in a National Sample of Adolescents,” Journal of Adolescent
Health 46, no. 6 (2010): 545–52; J. D. Ford, et al., “Clinical Significance of a Proposed
Development Trauma Disorder Diagnosis: Results of an International Survey of

Clinicians,”

Journal of Clinical Psychiatry 74, no. 8 (2013): 841–49.

34. Family Pathways Project,

http://www.challiance.org/academics/familypathwaysproject.aspx.

35. K. Lyons-Ruth and D. Block, “The Disturbed Caregiving System: Relations Among Childhood

Trauma, Maternal Caregiving, and Infant Affect and Attachment,” Infant Mental Health Journal

17, no. 3 (1996): 257–75.

36. K. Lyons-Ruth, “The Two-Person Construction of Defenses: Disorganized Attachment

Strategies, Unintegrated Mental States, and Hostile/Helpless Relational Processes,” Journal of

Infant, Child, and Adolescent Psychotherapy 2 (2003): 105.

37. G. Whitmer, “On the Nature of Dissociation,” Psychoanalytic Quarterly 70, no. 4 (2001): 807–

37. See also K. Lyons-Ruth, “The Two-Person Construction of Defenses: Disorganized Attachment Strategies, Unintegrated Mental States, and Hostile/Helpless Relational Processes,”

Journal of Infant, Child, and Adolescent Psychotherapy 2, no. 4 (2002): 107–19.

38. Mary S. Ainsworth and John Bowlby, “An Ethological Approach to Personality Development,”

American Psychologist 46, no. 4 (April 1991): 333–41.

39. K. Lyons-Ruth and D. Jacobvitz, 1999; Main, 1993; K. Lyons-Ruth, “Dissociation and the

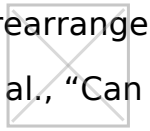
Parent-Infant Dialogue: A Longitudinal Perspective from Attachment Research,” Journal of the

American Psychoanalytic Association 51, no. 3 (2003): 883–911.

40. L. Dutra, et al., “Quality of Early Care and Childhood Trauma: A Prospective Study of

Developmental Pathways to Dissociation," Journal of Nervous and Mental Disease 197, no. 6
(2009): 383. See also K. Lyons-Ruth, et al., "Borderline Symptoms and Suicidality/Self-Injury
in Late Adolescence: Prospectively Observed Relationship Correlates in Infancy and
Childhood," Psychiatry Research 206, nos. 2–3 (April 30, 2013): 273–81.
41. For meta-analysis of the relative contributions of disorganized attachment and child
maltreatment, see C. Schuengel, et al., "Frightening Maternal Behavior Linking Unresolved
Loss and Disorganized Infant Attachment," Journal of Consulting and Clinical Psychology 67,
no. 1 (1999): 54.
42. K. Lyons-Ruth and D. Jacobvitz, "Attachment Disorganization: Genetic Factors, Parenting
Contexts, and Developmental Transformation from Infancy to Adulthood," in Handbook of
Attachment: Theory, Research, and Clinical Applications, 2nd ed., ed. J. Cassidy and R. Shaver
(New York: Guilford Press, 2008), 666–97. See also E. O'connor, et al., "Risks and Outcomes
Associated with Disorganized/Controlling Patterns of Attachment at Age Three Years in the
National Institute of Child Health & Human Development Study of Early Child Care and Youth
Development," Infant Mental Health Journal 32, no. 4 (2011): 450–72; and K. Lyons-Ruth, et
al., "Borderline Symptoms and Suicidality/Self-Injury.
43. At this point we have little information about what factors affect the evolution of these early

regulatory abnormalities, but intervening life events, the quality of other relationships, and
perhaps even genetic factors are likely to modify them over time. It is obviously critical to study
to what degree consistent and concentrated parenting of children with early histories of abuse
and neglect can rearrange biological systems.



44. E. Warner, et al., “Can the Body Change the Score? Application of Sensory Modulation
Principles in the Treatment of Traumatized Adolescents in Residential Settings,” Journal of
Family Violence 28, no. 7 (2003): 729–38.

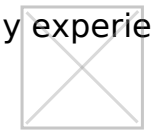
CHAPTER 8: TRAPPED IN RELATIONSHIPS: THE COST OF ABUSE AND NEGLECT

1. W. H. Auden, The Double Man (New York: Random House, 1941),

2. S. N. Wilson, et al., “Phenotype of Blood Lymphocytes in PTSD Suggests Chronic Immune
Activation,” Psychosomatics 40, no. 3 (1999): 222–25. See also M. Uddin, et al., “Epigenetic
and Immune Function Profiles Associated with Posttraumatic Stress Disorder,” Proceedings of
the National Academy of Sciences of the United States of America 107, no. 20 (2010): 9470–75;
M. Altemus, M. Cloitre, and F. S. Dhabhar, “Enhanced Cellular Immune Response in Women
with PTSD Related to Childhood Abuse,” American Journal of Psychiatry 160, no. 9 (2003):
1705–7; and N. Kawamura, Y. Kim, and N. Asukai, “Suppression of Cellular Immunity in Men
with a Past History of Posttraumatic Stress Disorder,” American Journal of Psychiatry 158, no.

3 (2001): 484–86.

3. R. Summit, “The Child Sexual Abuse Accommodation Syndrome,” Child Abuse & Neglect 7
(1983): 177–93.

4. A study using fMRI at the University of Lausanne in Switzerland showed that when people have
these out-of-body experiences, staring at themselves as if looking down from the ceiling, they

are activating the superior temporal cortex in the brain. O. Blanke, et al., “Linking Out-of-Body
Experience and Self Processing to Mental Own-Body Imagery at the Temporoparietal Junction,”
Journal of Neuroscience 25, no. 3 (2005): 550–57. See also O. Blanke and T. Metzinger, “Full-
Body Illusions and Minimal Phenomenal Selfhood,” Trends in Cognitive Sciences 13, no. 1
(2009): 7–13.

5. When an adult uses a child for sexual gratification, the child invariably is caught in a confusing
situation and a conflict of loyalties: By disclosing the abuse, she betrays and hurts the perpetrator (who may be an adult on whom the child depends for safety and protection), but by
hiding the abuse, she compounds her shame and vulnerability. This dilemma was first articulated by Sándor Ferenczi in 1933 in “The Confusion of Tongues Between the Adult and
the Child: The Language of Tenderness and the Language of Passion,” International Journal of
Psychoanalysis, 30 no. 4 (1949): 225–30, and has been explored by numerous subsequent
authors.

CHAPTER 9: WHAT'S LOVE GOT TO DO WITH IT?

1. Gary Greenberg, The Book of Woe: The DSM and the Unmaking of Psychiatry (New York:
Penguin, 2013).

2. http://www.thefreedictionary.com/diagnosis.

3. The TAQ can be accessed at the Trauma Center Web site:
www.traumacenter.org/products/instruments.php.

4. J. L. Herman, J. C. Perry, and B. A. van der Kolk, "Childhood Trauma in Borderline Personality
Disorder," American Journal of Psychiatry 146, no. 4 (April 1989): 490–95.

5. Teicher found significant changes in the orbitofrontal cortex (OFC), a region of the brain that is
involved in decision making and the regulation of behavior involved in sensitivity to social
demands. M. H. Teicher, et al., "The Neurobiological Consequences of Early Stress and
Childhood Maltreatment," Neuroscience & Biobehavioral Reviews 27, no. 1 (2003): 33–44. See
also M. H. Teicher, "Scars That Won't Heal: The Neurobiology of Child Abuse," Scientific
American 286, no. 3 (2002): 54–61; M. Teicher, et al., "Sticks, Stones, and Hurtful Words:
Relative Effects of Various Forms of Childhood Maltreatment," American Journal of Psychiatry
163, no. 6 (2006): 993–1000; A. Bechara, et al., "Insensitivity to Future Consequences
Following Damage to Human Prefrontal Cortex," Cognition 50 (1994): 7–15. Impairment in this
area of the brain results in excessive swearing, poor social interactions, compulsive gambling,
excessive alcohol / drug use and poor empathic ability. M. L. Kringelbach and E. T. Rolls, "The

Functional Neuroanatomy of the Human Orbitofrontal Cortex: Evidence from Neuroimaging
and Neuropsychology," Progress in Neurobiology 72 (2004): 341–72. The other problematic
area Teicher identified was the precuneus, a brain area involved in understanding oneself and
being able to take perspective on how your perceptions may be different from someone else's.
A. E. Cavanna and M. R. Trimble "The Precuneus: A Review of Its Functional Anatomy and
Behavioural Correlates," Brain 129 (2006): 564–83.
6. S. Roth, et al., "Complex PTSD in Victims Exposed to Sexual and Physical Abuse: Results from
the DSM-IV Field Trial for Posttraumatic Stress Disorder," Journal of Traumatic Stress 10
(1997): 539–55; B. A. van der Kolk et al., "Dissociation, Somatization, and Affect
Dysregulation: The Complexity of Adaptation to Trauma," American Journal of Psychiatry 153
(1996): 83–93; D. Pelcovitz, et al., "Development of a Criteria Set and a Structured Interview
for Disorders of Extreme Stress (SIDES)," Journal of Traumatic Stress 10 (1997): 3–16; S. N.
Ogata, et al., "Childhood Sexual and Physical Abuse in Adult Patients with Borderline
Personality Disorder," American Journal of Psychiatry 147 (1990): 1008–1013; M. C. Zanarini,
et al., "Axis I Comorbidity of Borderline Personality Disorder," American Journal of Psychiatry
155, no. 12. (December 1998): 1733–39; S. L. Shearer, et al., "Frequency and Correlates of
Childhood Sexual and Physical Abuse Histories in Adult Female Borderline Inpatients,"

American Journal of Psychiatry 147 (1990): 214–16; D. Westen, et al., “Physical and Sexual
Abuse in Adolescent Girls with Borderline Personality Disorder,” American Journal of
Orthopsychiatry 60 (1990): 55–66; M. C. Zanarini, et al., “Reported Pathological Childhood
Experiences Associated with the Development of Borderline Personality Disorder,” American
Journal of Psychiatry 154 (1997): 1101–1106.

7. J. Bowlby, A Secure Base: Parent-Child Attachment and Healthy Human Development (New
York: Basic Books, 2008), 103.

8. B. A. van der Kolk, J. C. Perry, and J. L. Herman, “Childhood Origins of Self-Destructive
Behavior,” American Journal of Psychiatry 148 (1991): 1665–71.

9. This notion found further support in the work of the neuroscientist Jaak Panksepp, who found
that young rats that were not licked by their moms during the first week of their lives did not
develop opioid receptors in the anterior cingulate cortex, a part of the brain associated with
affiliation and a sense of safety. See E. E. Nelson and J. Panksepp, “Brain Substrates of Infant-
Mother Attachment: Contributions of Opioids, Oxytocin, and Norepinephrine,” Neuroscience &
Biobehavioral Reviews 22, no. 3 (1998): 437–52. See also J. Panksepp, et al., “Endogenous
Opioids and Social Behavior,” Neuroscience & Biobehavioral Reviews 4, no. 4 (1981): 473–87;
and J. Panksepp, E. Nelson, and S. Siviy, “Brain Opioids and Mother-Infant Social Motivation,”

Acta paediatrica 83, no. 397 (1994): 40–46.

10. The delegation to Robert Spitzer also included Judy Herman, Jim Chu, and David Pelcovitz.

11. B. A. van der Kolk, et al., “Disorders of Extreme Stress: The Empirical Foundation of a Complex Adaptation to Trauma,” Journal of Traumatic Stress 18, no. 5 (2005): 389–99. See also J. L. Herman, “Complex PTSD: A Syndrome in Survivors of Prolonged and Repeated Trauma,” Journal of Traumatic Stress 5, no. 3 (1992): 377–91; C. Zlotnick, et al., “The Long-Term Sequelae of Sexual Abuse: Support for a Complex Posttraumatic Stress Disorder,” Journal of Traumatic Stress 9, no. 2 (1996): 195–205; S. Roth, et al., “Complex PTSD in Victims Exposed to Sexual and Physical Abuse: Results from the DSM-IV Field Trial for Posttraumatic Stress Disorder,” Journal of Traumatic Stress 10, no. 4 (1997): 539–55; and D. Pelcovitz, et al., “Development and Validation of the Structured Interview for Measurement of Disorders of Extreme Stress,” Journal of Traumatic Stress 10 (1997): 3–16.

12. B. C. Stolbach, et al., “Complex Trauma Exposure and Symptoms in Urban Traumatized Children: A Preliminary Test of Proposed Criteria for Developmental Trauma Disorder,” Journal of Traumatic Stress 26, no. 4 (August 2013): 483–91.

13. B. A. van der Kolk, et al., “Dissociation, Somatization and Affect Dysregulation: The Complexity of Adaptation to Trauma,” American Journal of Psychiatry 153, suppl (1996): 83–93. See also D. G. Kilpatrick, et al., “Posttraumatic Stress Disorder Field Trial: Evaluation of the PTSD Construct—Criteria A Through E,” in: DSM-IV Sourcebook, vol. 4 (Washington:

American Psychiatric Press, 1998), 803-844; T. Luxenberg, J. Spinazzola, and B. A. van der
Kolk, “Complex Trauma and Disorders of Extreme Stress (DESNOS) Diagnosis, Part One:
Assessment,” Directions in Psychiatry 21, no. 25 (2001): 373–92; and B. A. van der Kolk, et al.,
“Disorders of Extreme Stress: The Empirical Foundation of a Compex Adaptation to Trauma,”
Journal of Traumatic Stress 18, no. 5 (2005): 389–99.

14. These questions are available on the ACE Web site: http://acestudy.org/.

15. http://www.cdc.gov/ace/findings.htm; http://acestudy.org/download; V. Felitti, et al.,
“Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes
of Death in Adults: The Adverse Childhood Experiences (ACE) Study,” American Journal of
Preventive Medicine 14, no. 4 (1998): 245–58. See also R. Reading, “The Enduring Effects of
Abuse and Related Adverse Experiences in Childhood: A Convergence of Evidence from
Neurobiology and Epidemiology,” Child: Care, Health and Development 32, no. 2 (2006): 253–
56; V. J. Edwards, et al., “Experiencing Multiple Forms of Childhood Maltreatment and Adult
Mental Health: Results from the Adverse Childhood Experiences (ACE) Study,” American
Journal of Psychiatry 160, no. 8 (2003): 1453–60; S. R. Dube, et al., “Adverse Childhood
Experiences and Personal Alcohol Abuse as an Adult,” Addictive Behaviors 27, no. 5 (2002):
713–25; S. R. and S. R. Dube, et al., “Childhood Abuse, Neglect, and Household Dysfunction

and the Risk of Illicit Drug Use: The Adverse Childhood Experiences Study," Pediatrics 111,
no. 3 (2003): 564–72.
16. S. A. Strassels, "Economic Burden of Prescription Opioid Misuse and Abuse," Journal of
Managed Care Pharmacy 15, no. 7 (2009): 556–62.
17. C. B. Nemeroff, et al., "Differential Responses to Psychotherapy Versus Pharmacotherapy in
Patients with Chronic Forms of Major Depression and Childhood Trauma," Proceedings of the
National Academy of Sciences of the United States of America 100, no. 24 (2003): 14293–96.
See also C. Heim, P. M. Plotsky, and C. B. Nemeroff, "Importance of Studying the Contributions of Early Adverse Experience to Neurobiological Findings in Depression," Neuropsychopharmacology 29, no. 4 (2004): 641–48.
18. B. E. Carlson, "Adolescent Observers of Marital Violence," Journal of Family Violence 5, no.
4 (1990): 285–99. See also B. E. Carlson, "Children's Observations of Interparental Violence,"
in Battered Women and Their Families, ed. A. R. Roberts (New York: Springer, 1984), 147–67;
J. L. Edleson, "Children's Witnessing of Adult Domestic Violence," Journal of Interpersonal
Violence 14, no. 8 (1999): 839–70; K. Henning, et al., "Long-Term Psychological and Social
Impact of Witnessing Physical Conflict Between Parents," Journal of Interpersonal Violence 11,
no. 1 (1996): 35–51; E. N. Jouriles, C. M. Murphy, and D. O'Leary, "Interpersonal Aggression,
Marital Discord, and Child Problems," Journal of Consulting and Clinical Psychology 57,

no. 3
(1989): 453–55; J. R. Kolko, E. H. Blakely, and D. Engelman, “Children Who Witness Domestic Violence: A Review of Empirical Literature,” Journal of Interpersonal Violence 11,
no. 2 (1996): 281–93; and J. Wolak and D. Finkelhor, “Children Exposed to Partner Violence,”
in Partner Violence: A Comprehensive Review of 20 Years of Research, ed. J. L. Jasinski and L.
Williams (Thousand Oaks, CA: Sage, 1998).
19. Most of these statements are based on conversations with Vincent Felitti, amplified by J. E.
Stevens, “The Adverse Childhood Experiences Study—the Largest Public Health Study You
Never Heard Of,” Huffington Post, October 8, 2012,
http://www.huffingtonpost.com/jane-ellen-
stevens/the-adverse-childhood-exp _1_b_1943647.html.
20. Population attributable risk: the proportion of a problem in the overall population whose
problems can be attributed to specific risk factors.
21. National Cancer Institute, “Nearly 800,000 Deaths Prevented Due to Declines in Smoking”
(press release), March 14, 2012, available at
http://www.cancer.gov/newscenter/newsfromnci/2012/TobaccoControlCISNET.
CHAPTER 10: DEVELOPMENTAL TRAUMA: THE HIDDEN EPIDEMIC
1. These cases were part of the DTD field trial, conducted jointly by Julian Ford, Joseph Spinazzola, and me.
2. H. J. Williams, M. J. Owen, and M. C. O’Donovan, “Schizophrenia Genetics: New Insights
from New Approaches,” British Medical Bulletin 91 (2009): 61–74. See also P. V. Gejman, A.

R. Sanders, and K. S. Kendler, “Genetics of Schizophrenia: New Findings and Challenges,”
Annual Review of Genomics and Human Genetics 12 (2011): 121–44; and A. Sanders, et al.,
“No Significant Association of 14 Candidate Genes with Schizophrenia in a Large European
Ancestry Sample: Implications for Psychiatric Genetics,” American Journal of Psychiatry 165,
no. 4 (April 2008): 497–506.

3. R. Yehuda, et al., “Putative Biological Mechanisms for the Association Between Early Life
Adversity and the Subsequent Development of PTSD,” Psychopharmacology 212, no. 3
(October 2010): 405–417; K. C. Koenen, “Genetics of Posttraumatic Stress Disorder: Review
and Recommendations for Future Studies,” Journal of Traumatic Stress 20, no. 5 (October
2007): 737–50; M. W. Gilbertson, et al., “Smaller Hippocampal Volume Predicts Pathologic
Vulnerability to Psychological Trauma,” Nature Neuroscience 5 (2002): 1242–47.

4. Koenen, “Genetics of Posttraumatic Stress Disorder.” See also R. F. P. Broekman, M. Olff, and
F. Boer, “The Genetic Background to PTSD,” Neuroscience & Biobehavioral Reviews 31, no. 3
(2007): 348–62.

5. M. J. Meaney and A. C. Ferguson-Smith, “Epigenetic Regulation of the Neural Transcriptome:
The Meaning of the Marks,” Nature Neuroscience 13, no. 11 (2010): 1313–18. See also M. J.
Meaney, “Epigenetics and the Biological Definition of Gene × Environment Interactions,” Child

Development 81, no. 1 (2010): 41–79; and B. M. Lester, et al., “Behavioral Epigenetics,” Annals
of the New York Academy of Sciences 1226, no. 1 (2011): 14–33.
6. M. Szyf, “The Early Life Social Environment and DNA Methylation: DNA Methylation Mediating the Long-Term Impact of Social Environments Early in Life,” Epigenetics 6, no. 8
(2011): 971–78.
7. Moshe Szyf, Patrick McGowan, and Michael J. Meaney, “The Social Environment and the
Epigenome,” Environmental and Molecular Mutagenesis 49, no. 1 (2008): 46–60.
8. There now is voluminous evidence that life experiences of all sorts changes gene expression.
Some examples are: D. Mehta et al., “Childhood Maltreatment Is Associated with Distinct
Genomic and Epigenetic Profiles in Posttraumatic Stress Disorder,” Proceedings of the National
Academy of Sciences of the United States of America 110, no. 20 (2013): 8302–7; P. O. McGowan, et al., “Epigenetic Regulation of the Glucocorticoid Receptor in Human Brain Associates with Childhood Abuse,” Nature Neuroscience 12, no. 3 (2009): 342–48; M. N.
Davies, et al., “Functional Annotation of the Human Brain Methylome Identifies Tissue-Specific Epigenetic Variation Across Brain and Blood,” Genome Biology 13, no. 6 (2012): R43;
M. Gunnar and K. Quevedo, “The Neurobiology of Stress and Development,” Annual Review of
Psychology 58 (2007): 145–73; A. Sommershof, et al., “Substantial Reduction of Naïve and
Regulatory T Cells Following Traumatic Stress,” Brain, Behavior, and Immunity 23, no. 8
(2009): 1117–24; N. Provençal, et al., “The Signature of Maternal Rearing in the

Methylome in
Rhesus Macaque Prefrontal Cortex and T Cells," Journal of Neuroscience 32, no. 44 (2012):
15626–42; B. Labonté, et al., "Genome-wide Epigenetic Regulation by Early-Life Trauma,"
Archives of General Psychiatry 69, no. 7 (2012): 722–31; A. K. Smith, et al., "Differential
Immune System DNA Methylation and Cytokine Regulation in Post-traumatic Stress Disorder,"
American Journal of Medical Genetics Part B: Neuropsychiatric Genetics 156B, no. 6 (2011):
700–708; M. Uddin, et al., "Epigenetic and Immune Function Profiles Associated with Posttraumatic Stress Disorder," Proceedings of the National Academy of Sciences of the United
States of America 107, no. 20 (2010): 9470–75.

9. C. S. Barr, et al., "The Utility of the Non-human Primate Model for Studying Gene by Environment Interactions in Behavioral Research," Genes, Brain and Behavior 2, no. 6 (2003):
336–40.

10. A. J. Bennett, et al., "Early Experience and Serotonin Transporter Gene Variation Interact to
Influence Primate CNS Function," Molecular Psychiatry 7, no. 1 (2002): 118–22. See also C. S.
Barr, et al., "Interaction Between Serotonin Transporter Gene Variation and Rearing Condition
in Alcohol Preference and Consumption in Female Primates," Archives of General Psychiatry
61, no. 11 (2004): 1146; and C. S. Barr, et al., "Serotonin Transporter Gene Variation Is Associated with Alcohol Sensitivity in Rhesus Macaques Exposed to Early-Life Stress," Alcoholism: Clinical and Experimental Research 27, no. 5 (2003): 812–17.

11. A. Roy, et al., “Interaction of FKBP5, a Stress-Related Gene, with Childhood Trauma Increases the Risk for Attempting Suicide,” Neuropsychopharmacology 35, no. 8 (2010): 1674–
83. See also M. A. Enoch, et al., “The Influence of GABRA2, Childhood Trauma, and Their
Interaction on Alcohol, Heroin, and Cocaine Dependence,” Biological Psychiatry 67 no. 1
(2010): 20–27; and A. Roy, et al., “Two HPA Axis Genes, CRHBP and FKBP5, Interact with
Childhood Trauma to Increase the Risk for Suicidal Behavior,” Journal of Psychiatric Research
46, no. 1 (2012): 72–79.
12. A. S. Masten and D. Cicchetti, “Developmental Cascades,” Development and Psychopathology
22, no. 3 (2010): 491–95; S. L. Toth, et al., “Illogical Thinking and Thought Disorder in Maltreated Children,” Journal of the American Academy of Child & Adolescent Psychiatry 50,
no. 7 (2011): 659–68; J. Willis, “Building a Bridge from Neuroscience to the Classroom,” Phi
Delta Kappan 89, no. 6 (2008): 424; I. M. Eigsti and D. Cicchetti, “The Impact of Child Maltreatment on Expressive Syntax at 60 Months,” Developmental Science 7, no. 1 (2004): 88–
102.
13. J. Spinazzola, et al., “Survey Evaluates Complex Trauma Exposure, Outcome, and Intervention
Among Children and Adolescents,” Psychiatric Annals 35, no. 5 (2005): 433–39.
14. R. C. Kessler, C. B. Nelson, and K. A. McGonagle, “The Epidemiology of Co-occuring Addictive and Mental Disorders,” American Journal of Orthopsychiatry 66, no. 1 (1996): 17–
31. See also Institute of Medicine of the National Academies, Treatment of

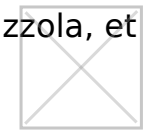
Posttraumatic Stress

Disorder (Washington: National Academies Press, 2008); and C. S. North, et al., “Toward

Validation of the Diagnosis of Posttraumatic Stress Disorder,” American Journal of Psychiatry

166, no. 1 (2009): 34–40.

15. Joseph Spinazzola, et al., “Survey Evaluates Complex Trauma Exposure, Outcome, and



Intervention Among Children and Adolescents,” Psychiatric Annals (2005).

16. Our work group consisted of Drs. Bob Pynoos, Frank Putnam, Glenn Saxe, Julian Ford, Joseph

Spinazzola, Marylene Cloitre, Bradley Stolbach, Alexander McFarlane, Alicia Lieberman, Wendy D’Andrea, Martin Teicher, and Dante Cicchetti.

17. The proposed criteria for Developmental Trauma Disorder can be found in the Appendix.

18. http://www.traumacenter.org/products/instruments.php.

19. Read more about Sroufe at www.cehd.umn.edu/icd/people/faculty/cpsy/sroufe.html and more

about the Minnesota Longitudinal Study of Risk and Adaptation and its publications at http://www.cehd.umn.edu/icd/research/parent-child/ and

http://www.cehd.umn.edu/icd/research/parent-child/publications/. See also L. A. Sroufe and W.

A. Collins, The Development of the Person: The Minnesota Study of Risk and Adaptation from

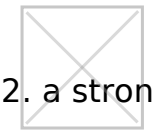
Birth to Adulthood (New York: Guilford Press, 2009); and L. A. Sroufe, “Attachment and Development: A Prospective, Longitudinal Study from Birth to Adulthood,” Attachment &

Human Development 7, no. 4 (2005): 349–67.

20. L. A. Sroufe, The Development of the Person: The Minnesota Study of Risk and Adaptation

from Birth to Adulthood (New York: Guilford Press, 2005). Harvard researcher Karlen Lyons-
Ruth had similar findings in a sample of children she followed for about eighteen years: Disorganized attachment, role reversal, and lack of maternal communication at age three were
the greatest predictors of children being part of the mental health or social service system at age
eighteen.

21. D. Jacobvitz and L. A. Sroufe, “The Early Caregiver-Child Relationship and Attention-Deficit
Disorder with Hyperactivity in Kindergarten: A Prospective Study,” Child Development 58, no.
6 (December 1987): 1496–504.
22. G. H. Elder Jr., T. Van Nguyen, and A. Caspi, “Linking Family Hardship to Children’s Lives,”
Child Development 56, no. 2 (April 1985): 361–75.
23. For children who were physically abused, the chance of being diagnosed with conduct disorder
or oppositional defiant disorder went up by a factor of three. Neglect or sexual abuse doubled
the chance of developing an anxiety disorder. Parental psychological unavailability or sexual
abuse doubled the chance of later developing PTSD. The chance of receiving multiple diagnoses
was 54 percent for children who suffered neglect, 60 percent for physical abuse, and 73 percent
for both sexual abuse.
24. This was a quote based on the work of Emmy Werner, who has studied 698 children born on
the island of Kauai for forty years, starting in 1955. The study showed that most

children who
grew up in unstable households grew up to experience problems with delinquency, mental and
physical health, and family stability. One-third of all high-risk children displayed resilience and
developed into caring, competent, and confident adults. Protective factors were 1. being an

appealing child, 2. a strong bond with a nonparent caretaker (such as an aunt, a babysitter, or a
teacher) and strong involvement in church or community groups. E. E. Werner and R. S. Smith,
Overcoming the Odds: High Risk Children from Birth to Adulthood (Ithaca and London: Cornell
University Press, 1992).
25. P. K. Trickett, J. G. Noll, and F. W. Putnam, “The Impact of Sexual Abuse on Female Development: Lessons from a Multigenerational, Longitudinal Research Study,” Development
and Psychopathology 23 (2011): 453–76. See also J. G. Noll, P. K. Trickett, and F. W. Putnam,
“A Prospective Investigation of the Impact of Childhood Sexual Abuse on the Development of
Sexuality,” Journal of Consulting and Clinical Psychology 71 (2003): 575–86; P. K. Trickett, C.
McBride-Chang, and F. W. Putnam, “The Classroom Performance and Behavior of Sexually
Abused Females,” Development and Psychopathology 6 (1994): 183–94; P. K. Trickett and F.
W. Putnam, Sexual Abuse of Females: Effects in Childhood (Washington: National Institute of
Mental Health, 1990–1993); F. W. Putnam and P. K. Trickett, The Psychobiological

Effects of
Child Sexual Abuse (New York: W. T. Grant Foundation, 1987).
26. In the sixty-three studies on disruptive mood regulation disorder, nobody asked anything about
attachment, PTSD, trauma, child abuse, or neglect. The word “maltreatment” is used in passing
in just one of the sixty-three articles. There is nothing about parenting, family dynamics, or
about family therapy.
27. In the appendix at the back of the DSM, you can find the so-called V-codes, diagnostic labels
without official standing that are not eligible for insurance reimbursement. There you will see
listings for childhood abuse, childhood neglect, childhood physical abuse, and childhood sexual
abuse.
28. Ibid., p 121.
29. At the time of this writing, the DSM-5 is number seven on Amazon’s best-seller list. The APA
earned $100 million on the previous edition of the DSM. The publication of the DSM constitutes, with contributions from the pharmaceutical industry and membership dues, the
APA’s major source of income.
30. Gary Greenberg, The Book of Woe: The DSM and the Unmaking of Psychiatry (New York:
Penguin, 2013), 239.
31. In an open letter to the APA David Elkins, the chairman of one of the divisions of the
American Psychological Association, complained that DSM-V was based on shaky evidence,

carelessness with the public health, and the conceptualizations of mental disorder as primarily
medical phenomena." His letter attracted nearly five thousand signatures. The president of the
American Counseling Association sent a letter on behalf of its 115,000 DSM-buying members
to the president of the APA, also objecting to the quality of the science behind DSM-5—and
"urge(d) the APA to make public the work of the scientific review committee it had appointed to
review the proposed changes, as well as to allow an evaluation of "all evidence and data by
external, independent groups of experts."
32. Thomas Insel had formerly done research on the attachment hormone oxytocin in non-human
primates.
33. National Institute of Mental Health, "NIMH Research Domain Criteria (RDoC),"
http://www.nimh.nih.gov/research-priorities/rdoc/nimh-research-domain-criteria-rdoc.shtml.
34. The Development of the Person: The Minnesota Study of Risk and Adaptation from Birth to
Adulthood (New York: Guilford Press, 2005).
35. B. A. van der Kolk, "Developmental Trauma Disorder: Toward a Rational Diagnosis for
Children with Complex Trauma Histories," Psychiatric Annals 35, no. 5 (2005): 401–8; W.
D'Andrea, et al., "Understanding Interpersonal Trauma in Children: Why We Need a
Developmentally Appropriate Trauma Diagnosis," American Journal of Orthopsychiatry 82
(2012): 187–200. J. D. Ford, et al., "Clinical Significance of a Proposed Developmental

Trauma
Disorder Diagnosis: Results of an International Survey of Clinicians," Journal of Clinical Psychiatry 74, no. 8 (2013): 841–849. Up-to-date results from the Developmental Trauma
Disorder field trial study are available on our Web site: www.traumacenter.org.
36. J. J. Heckman, "Skill Formation and the Economics of Investing in Disadvantaged Children,"

Science 312, no. 5782 (2006): 1900–2.
37. D. Olds, et al., "Long-Term Effects of Nurse Home Visitation on Children's Criminal and
Antisocial Behavior: 15-Year Follow-up of a Randomized Controlled Trial," JAMA 280, no. 14
(1998): 1238–44. See also J. Eckenrode, et al., "Preventing Child Abuse and Neglect with a
Program of Nurse Home Visitation: The Limiting Effects of Domestic Violence," JAMA 284,
no. 11 (2000): 1385–91; D. I. Lowell, et al., "A Randomized Controlled Trial of Child FIRST: A
Comprehensive Home-Based Intervention Translating Research into Early Childhood Practice,"
Child Development 82, no. 1 (January/February 2011): 193–208; S. T. Harvey and J. E. Taylor,
"A Meta-Analysis of the Effects of Psychotherapy with Sexually Abused Children and Adolescents, Clinical Psychology Review 30, no. 5 (July 2010): 517–35; J. E. Taylor and S. T.
Harvey, "A Meta-Analysis of the Effects of Psychotherapy with Adults Sexually Abused in
Childhood," Clinical Psychology Review 30, no. 6 (August 2010): 749–67; Olds, Henderson,
Chamberlin, & Tatelbaum, 1986; B. C. Stolbach, et al., "Complex Trauma Exposure and

Symptoms in Urban Traumatized Children: A Preliminary Test of Proposed Criteria for Developmental Trauma Disorder," Journal of Traumatic Stress 26, no. 4 (August 2013): 483–
91.

CHAPTER 11: UNCOVERING SECRETS: THE PROBLEM OF TRAUMATIC MEMORY

1. Unlike clinical consultations, in which doctor-patient confidentiality applies, forensic evaluations are public documents to be shared with lawyers, courts, and juries. Before doing a
forensic evaluation I inform clients of that and warn them that nothing they tell me can be kept
confidential.

2. K. A. Lee, et al., "A 50-Year Prospective Study of the Psychological Sequelae of World War II
Combat," American Journal of Psychiatry 152, no. 4 (April 1995): 516–22.

3. J. L. McGaugh and M. L. Hertz, Memory Consolidation (San Fransisco: Albion Press, 1972); L.
Cahill and J. L. McGaugh, "Mechanisms of Emotional Arousal and Lasting Declarative Memory," Trends in Neurosciences 21, no. 7 (1998): 294–99.

4. A. F. Arnsten, et al., "α-1 Noradrenergic Receptor Stimulation Impairs Prefrontal Cortical
Cognitive Function," Biological Psychiatry 45, no. 1 (1999): 26–31. See also A. F. Arnsten,
"Enhanced: The Biology of Being Frazzled," Science 280, no. 5370 (1998): 1711–12; S. Birnbaum, et al., "A Role for Norepinephrine in Stress-Induced Cognitive Deficits: α-1-adrenoceptor Mediation in the Prefrontal Cortex," Biological Psychiatry 46, no. 9 (1999): 1266–
74.

5. Y. D. Van Der Werf, et al. "Special Issue: Contributions of Thalamic Nuclei to Declarative
Memory Functioning," Cortex 39 (2003): 1047–62. See also B. M. Elzinga and J. D.

Bremner,
“Are the Neural Substrates of Memory the Final Common Pathway in Posttraumatic Stress
Disorder (PTSD)?” Journal of Affective Disorders 70 (2002): 1–17; L. M. Shin et al., “A Functional Magnetic Resonance Imaging Study of Amygdala and Medial Prefrontal Cortex
Responses to Overtly Presented Fearful Faces in Posttraumatic Stress Disorder,” Archives of
General Psychiatry 62 (2005): 273–81; L. M. Williams et al., “Trauma Modulates Amygdala
and Medial Prefrontal Responses to Consciously Attended Fear,” Neuroimage 29 (2006): 347–
57; R. A. Lanius et al., “Brain Activation During Script-Driven Imagery Induced Dissociative
Responses in PTSD: A Functional Magnetic Resonance Imaging Investigation,” Biological
Psychiatry 52 (2002): 305–311; H. D Critchley, C. J. Mathias, and R. J. Dolan, “Fear Conditioning in Humans: The Influence of Awareness and Autonomic Arousal on Functional
Neuroanatomy,” Neuron 33 (2002): 653–63; M. Beauregard, J. Levesque, and P. Bourgouin,
“Neural Correlates of Conscious Self-Regulation of Emotion,” Journal of Neuroscience 21
(2001): RC165; K. N. Ochsner et al., “For Better or for Worse: Neural Systems Supporting the
Cognitive Down- and Up-Regulation of Negative Emotion,” NeuroImage 23 (2004): 483–99;
M. A. Morgan, L. M. Romanski, and J. E. LeDoux, et al., “Extinction of Emotional Learning:
Contribution of Medial Prefrontal Cortex,” Neuroscience Letters 163 (1993): 109–13; M.

R.
Milad and G. J. Quirk, “Neurons in Medial Prefrontal Cortex Signal Memory for Fear Extinction,” Nature 420 (2002): 70–74; and J. Amat, et al., “Medial Prefrontal Cortex Determines How Stressor Controllability Affects Behavior and Dorsal Raphe Nucleus,” Nature
Neuroscience 8 (2005): 365–71.
6. B. A. Van der Kolk and R. Fisler, “Dissociation and the Fragmentary Nature of Traumatic
Memories: Overview and Exploratory Study,” Journal of Traumatic Stress 8, no. 4 (1995): 505–
25.
7. Hysteria as defined by Free Dictionary, http://www.thefreedictionary.com/hysteria.
8. A. Young, The Harmony of Illusions: Inventing Post-traumatic Stress Disorder (Princeton
University Press, 1997). See also H. F. Ellenberger, The Discovery of the Unconscious: The
History and Evolution of Dynamic Psychiatry (Basic Books, 2008).
9. T. Ribot, Diseases of Memory (Appleton, 1887), 108–9; Ellenberger, Discovery of the Unconscious.
10. J. Breuer and S. Freud, “The Physical Mechanisms of Hysterical Phenomena,” in The Standard
Edition of the Complete Psychological Works of Sigmund Freud (London: Hogarth Press, 1893).
11. A. Young, Harmony of Illusions.
12. J. L. Herman, Trauma and Recovery (New York: Basic Books, 1997), 15.
13. A. Young, Harmony of Illusions. See also J. M. Charcot, Clinical Lectures on Certain Diseases
of the Nervous System, vol. 3 (London: New Sydenham Society, 1888).
14. http://en.wikipedia.org/wiki/File:Jean-Martin_Charcot_chronophotography.jpg
15. P. Janet, L’Automatisme psychologique (Paris: Félix Alcan, 1889).

16. Onno van der Hart introduced me to the work of Janet and probably is the greatest living
scholar of his work. I had the good fortune of closely collaborating with Onno on summarizing
Janet's fundamental ideas. B. A. van der Kolk and O. van der Hart, "Pierre Janet and the
Breakdown of Adaptation in Psychological Trauma," American Journal of Psychiatry 146
(1989): 1530–40; B. A. van der Kolk and O. van der Hart, "The Intrusive Past: The Flexibility
of Memory and the Engraving of Trauma," Imago 48 (1991): 425–54.
17. P. Janet, "L'amnésie et la dissociation des souvenirs par l'emotion" [Amnesia and the
dissociation of memories by emotions], Journal de Psychologie 1 (1904): 417–53.
18. P. Janet, Psychological Healing (New York: Macmillan, 1925); p 660.
19. P. Janet, L'Etat mental des hystériques, 2nd ed. (Paris: Félix Alcan, 1911; repr. Marseille,
France: Lafitte Reprints, 1983). P. Janet, The Major Symptoms of Hysteria (London and New
York: Macmillan, 1907; repr. New York: Hafner, 1965); P. Janet, L'evolution de la memoire et
de la notion du temps (Paris: A. Chahine, 1928).
20. J. L. Titchener, "Post-traumatic Decline: A Consequence of Unresolved Destructive Drives,"
Trauma and Its Wake 2 (1986): 5–19.
21. J. Breuer, and S. Freud, "The Physical Mechanisms of Hysterical Phenomena."
22. S. Freud and J. Breuer, "The Etiology of Hysteria," in the Standard Edition of the Complete
Psychological Works of Sigmund Freud, vol. 3, ed. J. Strachy (London: Hogarth Press, 1962):
189–221.

23. S. Freud, “Three Essays on the Theory of Sexuality,” in the Standard Edition of the Complete
Psychological Works of Sigmund Freud, vol. 7 (London: Hogarth Press, 1962): 190: The reappearance of sexual activity is determined by internal causes and external contingencies . . . I
shall have to speak presently of the internal causes; great and lasting importance attaches at this

period to the accidental external [Freud’s emphasis] contingencies. In the foreground we find
the effects of seduction, which treats a child as a sexual object prematurely and teaches him, in
highly emotional circumstances, how to obtain satisfaction from his genital zones, a satisfaction
which he is then usually obliged to repeat again and again by masturbation. An influence of this
kind may originate either from adults or from other children. I cannot admit that in my paper on
‘The Aetiology of Hysteria’ (1896c) I exaggerated the frequency or importance of that influence,
though I did not then know that persons who remain normal may have had the same experiences
in their childhood, and though I consequently overrated the importance of seduction in comparison with the factors of sexual constitution and development. Obviously seduction is not
required in order to arouse a child’s sexual life; that can also come about spontaneously from
internal causes. S. Freud “Introductory Lectures in Psycho-analysis in Stand ard Edition (1916),
370: Phantasies of being seduced are of particular interest, because so often they are not

phantasies but real memories.

24. S. Freud, Inhibitions Symptoms and Anxiety (1914), 150. See also Strachey, Standard Edition
of the Complete Psychological Works.

25. B. A. van der Kolk, Psychological Trauma (Washington, D: American Psychiatric Press,
1986).

26. B. A. Van der Kolk, "The Compulsion to Repeat the Trauma," Psychiatric Clinics of North
America 12, no. 2 (1989): 389–411.

CHAPTER 12: THE UNBEARABLE HEAVINESS OF REMEMBERING

1. A. Young, The Harmony of Illusions: Inventing Post-traumatic Stress Disorder (Princeton, NJ:
Princeton University Press, 1997), 84.

2. F. W. Mott, "Special Discussion on Shell Shock Without Visible Signs of Injury," Proceedings
of the Royal Society of Medicine 9 (1916): i–xliv. See also C. S. Myers, "A Contribution to the
Study of Shell Shock," Lancet 1 (1915): 316–20; T. W. Salmon, "The Care and Treatment of
Mental Diseases and War Neuroses ("Shell Shock") in the British Army," Mental Hygiene 1
(1917): 509–47; and E. Jones and S. Wessely, Shell Shock to PTSD: Military Psychiatry from
1900 to the Gulf (Hove, UK: Psychology Press, 2005).

3. J. Keegan, The First World War (New York: Random House, 2011).

4. A. D. Macleod, "Shell Shock, Gordon Holmes and the Great War." Journal of the Royal Society
of Medicine 97, no. 2 (2004): 86–89; M. Eckstein, Rites of Spring: The Great War and the Birth

of the Modern Age (Boston: Houghton Mifflin, 1989).

5. Lord Southborough, Report of the War Office Committee of Enquiry into “Shell-Shock”

(London: His Majesty’s Stationery Office, 1922).

6. Booker Prize winner Pat Barker has written a moving trilogy about the work of army psychiatrist W. H. R. Rivers: P. Barker, Regeneration (London: Penguin UK, 2008); P. Barker,



The Eye in the Door (New York: Penguin, 1995); P. Barker, The Ghost Road (London: Penguin

UK, 2008). Further discussions of the aftermath of World War I can be found in A. Young,

Harmony of Illusions; and B. Shephard, A War of Nerves, Soldiers and Psychiatrists 1914–1994

(London: Jonathan Cape, 2000).

7. J. H. Bartlett, The Bonus March and the New Deal (1937); R. Daniels, The Bonus March: An

Episode of the Great Depression (1971).

8. E. M. Remarque, All Quiet on the Western Front, trans. A. W. Wheen (London: GP Putnam’s

Sons, 1929).

9. Ibid., pp. 192–93.

10. For an account, see

http://motlc.wiesenthal.com/site/pp.asp?c=gvKVLcMVIuG&b=395007.

11. C. S. Myers, Shell Shock in France 1914–1918 (Cambridge UK, Cambridge University Press,

1940).

12. A. Kardiner, The Traumatic Neuroses of War (New York: Hoeber, 1941).

13. http://en.wikipedia.org/wiki/Let_There_Be_Light_(film).

14. G. Greer and J. Oxenbould, Daddy, We Hardly Knew You (London: Penguin, 1990).

15. A. Kardiner and H. Spiegel, War Stress and Neurotic Illness (Oxford, England:

Hoeber, 1947).

16. D. J. Henderson, “Incest,” in Comprehensive Textbook of Psychiatry, 2nd ed., eds. A. M.
Freedman and H. I. Kaplan (Baltimore: Williams & Wilkins, 1974), p. 1536.

17. W. Sargent and E. Slater, “Acute War Neuroses,” The Lancet 236, no. 6097 (1940): 1–2. See
also G. Debenham, et al., “Treatment of War Neurosis,” The Lancet 237, no. 6126 (1941): 107–
9; and W. Sargent and E. Slater, “Amnesic Syndromes in War,” Proceedings of the Royal Society
of Medicine (Section of Psychiatry) 34, no. 12 (October 1941): 757–64.

18. Every single scientific study of memory of childhood sexual abuse, whether prospective or
retrospective, whether studying clinical samples or general population samples, finds that a
certain percentage of sexually abused individuals forget, and later remember, their abuse. See,
e.g., B. A. van der Kolk and R. Fisler, “Dissociation and the Fragmentary Nature of Traumatic
Memories: Overview and Exploratory Study,” Journal of Traumatic Stress 8 (1995): 505–25; J.
W. Hopper and B. A. van der Kolk, “Retrieving, Assessing, and Classifying Traumatic Memories: A Preliminary Report on Three Case Studies of a New Standardized Method,”
Journal of Aggression, Maltreatment & Trauma 4 (2001): 33–71; J. J. Freyd and A. P. DePrince,
eds., Trauma and Cognitive Science (Binghamton, NY: Haworth Press, 2001), 33–71; A. P.
DePrince and J. J. Freyd, “The Meeting of Trauma and Cognitive Science: Facing Challenges

and Creating Opportunities at the Crossroads," Journal of Aggression, Maltreatment & Trauma
4, no. 2 (2001): 1–8; D. Brown, A. W. Scheflin, and D. Corydon Hammond, Memory, Trauma
Treatment and the Law (New York: Norton, 1997); K. Pope and L. Brown, Recovered Memories
of Abuse: Assessment, Therapy, Forensics (Washington: American Psychological Association,
1996); and L. Terr, Unchained Memories: True Stories of Traumatic Memories, Lost and Found
(New York: Basic Books, 1994).
19. E. F. Loftus, S. Polonsky, and M. T. Fullilove, "Memories of Childhood Sexual Abuse: Remembering and Repressing," Psychology of Women Quarterly 18, no. 1 (1994): 67–84. L. M.
Williams, "Recall of Childhood Trauma: A Prospective Study of Women's Memories of Child
Sexual Abuse," Journal of Consulting and Clinical Psychology 62, no. 6 (1994): 1167–76.
20. L. M. Williams, "Recall of Childhood Trauma."
21. L. M. Williams, "Recovered Memories of Abuse in Women with Documented Child Sexual
Victimization Histories," Journal of Traumatic Stress 8, no. 4 (1995): 649–73.
22. The prominent neuroscientist Jaak Panksepp states in his most recent book: "Abundant
preclinical work with animal models has now shown that memories that are retrieved tend to
return to their memory banks with modifications." J. Panksepp and L. Biven, The Archaeology
of Mind: Neuroevolutionary Origins of Human Emotions, Norton Series on Interpersonal Neurobiology (New York: WW Norton, 2012).

23. E. F. Loftus, “The Reality of Repressed Memories,” American Psychologist 48, no. 5 (1993):
518–37. See also E. F. Loftus and K. Ketcham, The Myth of Repressed Memory: False Memories and Allegations of Sexual Abuse (New York: Macmillan, 1996).
24. J. F. Kihlstrom, “The Cognitive Unconscious,” Science 237, no. 4821 (1987): 1445–52.
25. E. F. Loftus, “Planting Misinformation in the Human Mind: A 30-Year Investigation of the
Malleability of Memory,” Learning & Memory 12, no. 4 (2005): 361–66.
26. B. A. Van der Kolk and R. Fisler, “Dissociation and the Fragmentary Nature of Traumatic
Memories: Overview and Exploratory Study,” Journal of Traumatic Stress 8, no. 4 (1995): 505–
25.
27. We will explore this further in chapter 14.
28. L. L. Langer, Holocaust Testimonies: The Ruins of Memory (New Haven: Yale University
Press, 1991).
29. Ibid., p.5.
30. L. L. Langer, op cit., p. 21.
31. L. L. Langer, op cit., p. 34.
32. J. Osterman and B. A. van der Kolk, “Awareness during Anaesthesia and Posttraumatic Stress
Disorder,” General Hospital Psychiatry 20 (1998): 274-81. See also K. Kiviniemi, “Conscious
Awareness and Memory During General Anesthesia,” Journal of the American Association of
Nurse Anesthetists 62 (1994): 441–49; A. D. Macleod and E. Maycock, “Awareness During
Anaesthesia and Post Traumatic Stress Disorder,” Anaesthesia and Intensive Care 20,

no. 3
(1992) 378–82; F. Guerra, “Awareness and Recall: Neurological and Psychological Complications of Surgery and Anesthesia,” in International Anesthesiology Clinics, vol. 24. ed.
B. T Hindman (Boston: Little Brown, 1986), 75–99; J. Eldor and D. Z. N. Frankel, “Intra-anesthetic Awareness,” Resuscitation 21 (1991): 113–19; J. L. Breckenridge and A. R. Aitkenhead, “Awareness During Anaesthesia: A Review,” Annals of the Royal College of Surgeons of England 65, no. 2 (1983), 93.

CHAPTER 13: HEALING FROM TRAUMA: OWNING YOUR SELF

1. “Self-leadership” is the term used by Dick Schwartz in internal family system therapy, the topic
of chapter 17.
2. The exceptions are Pesso’s and Schwartz’s work, detailed in chapters 17 and 18, which I
practice, and from which I have personally benefited, but which I have not studied scientifically
—at least not yet.
3. A. F. Arnsten, “Enhanced: The Biology of Being Frazzled,” Science 280, no. 5370 (1998):
1711–12; A. Arnsten, “Stress Signalling Pathways That Impair Prefrontal Cortex Structure and
Function,” Nature Reviews Neuroscience 10, no. 6 (2009): 410–22.
4. D. J. Siegel, The Mindful Therapist: A Clinician’s Guide to Mindsight and Neural Integration
(New York: WW Norton, 2010).
5. J. E. LeDoux, “Emotion Circuits in the Brain,” Annual Review of Neuroscience 23, no. 1 (2000):
155–84. See also M. A. Morgan, L. M. Romanski, and J. E. LeDoux, “Extinction of Emotional
Learning: Contribution of Medial Prefrontal Cortex,” Neuroscience Letters 163, no. 1

(1993):
109–113; and J. M. Moscarello and J. E. LeDoux, “Active Avoidance Learning Requires Prefrontal Suppression of Amygdala-Mediated Defensive Reactions,” Journal of Neuroscience
33, no. 9 (2013): 3815–23.
6. S. W. Porges, “Stress and Parasympathetic Control,” Stress Science: Neuroendocrinology 306
(2010). See also S. W. Porges, “Reciprocal Influences Between Body and Brain in the Perception and Expression of Affect,” in The Healing Power of Emotion: Affective Neuroscience, Development & Clinical Practice, Norton Series on Interpersonal Neurobiology
(New York: WW Norton, 2009), 27.
7. B. A. van der Kolk, et al., “Yoga As an Adjunctive Treatment for PTSD.” Journal of Clinical
Psychiatry 75, no. 6 (June 2014): 559–65.
8. Sebern F. Fisher, Neurofeedback in the Treatment of Developmental Trauma: Calming the Fear-
Driven Brain. (New York: WW Norton & Company, 2014).
9. R. P. Brown and P. L. Gerbarg, “Sudarshan Kriya Yogic Breathing in the Treatment of Stress,
Anxiety, and Depression—Part II: Clinical Applications and Guidelines,” Journal of Alternative
& Complementary Medicine 11, no. 4 (2005): 711–17. See also C. L. Mandle, et al., “The
Efficacy of Relaxation Response Interventions with Adult Patients: A Review of the Literature,”
Journal of Cardiovascular Nursing 10 (1996): 4–26; and M. Nakao, et al., “Anxiety Is a Good
Indicator for Somatic Symptom Reduction Through Behavioral Medicine Intervention in a

Mind/Body Medicine Clinic," Psychotherapy and Psychosomatics 70 (2001): 50–57.

10. C. Hannaford, Smart Moves: Why Learning Is Not All in Your Head (Arlington, VA: Great
Ocean Publishers, 1995), 22207–3746.

11. J. Kabat-Zinn, Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face
Stress, Pain, and Illness (New York: Bantam Books, 2013). See also D. Fosha, D. J. Siegel, and
M. Solomon, eds., The Healing Power of Emotion: Affective Neuroscience, Development &
Clinical Practice, Norton Series on Interpersonal Neurobiology (New York: WW Norton, 2011); and B. A. van der Kolk, "Posttraumatic Therapy in the Age of Neuroscience," Psychoanalytic Dialogues 12, no. 3 (2002): 381–92.

12. As we have seen in chapter 5, brain scans of people suffering from PTSD show altered
activation in areas associated with the default network, which is involved with autobiographical
memory and a continuous sense of self.

13. P. A. Levine, In an Unspoken Voice: How the Body Releases Trauma and Restores Goodness
(Berkeley: North Atlantic, 2010).

14. P. Ogden, Trauma and the Body (New York: Norton, 2009). See also A. Y. Shalev, "Measuring
Outcome in Posttraumatic Stress Disorder," Journal of Clinical Psychiatry 61, supp. 5 (2000):
33–42.

15. I. Kabat-Zinn, Full Catastrophe Living. p. xx

16. S. G. Hofmann, et al., "The Effect of Mindfulness-Based Therapy on Anxiety and Depression:
A Meta-Analytic Review," Journal of Consulting and Clinical Psychology 78, no.2 (2010):

169–83; J. D. Teasdale, et al., “Prevention of Relapse/Recurrence in Major Depression by
Mindfulness-Based Cognitive Therapy,” Journal of Consulting and Clinical Psychology 68
(2000): 615–23. See also Britta K. Hölzel, et al., “How Does Mindfulness Meditation Work?
Proposing Mechanisms of Action from a Conceptual and Neural Perspective.” Perspectives on
Psychological Science 6, no. 6 (2011): 537–59; and P. Grossman, et al., “Mindfulness-Based
Stress Reduction and Health Benefits: A Meta-Analysis,” Journal of Psychosomatic Research
57, no. 1 (2004): 35–43.

17. The brain circuits involved in mindfulness meditation have been well established, and improve
attention regulation and has a positive effect on the interference of emotional reactions with
attentional performance tasks. See L. E. Carlson, et al., “One Year Pre-Post Intervention Follow-
up of Psychological, Immune, Endocrine and Blood Pressure Outcomes of Mindfulness-Based
Stress Reduction (MBSR) in Breast and Prostate Cancer Outpatients,” Brain, Behavior, and
Immunity 21, no. 8 (2007): 1038–49; and R. J. Davidson, et al., “Alterations in Brain and
Immune Function Produced by Mindfulness Meditation,” Psychosomatic Medicine 65, no. 4
(2003): 564–70.

18. Britta Hölzel and her colleagues have done extensive research on meditation and brain function

and have shown that it involves the dorsomedial PFC, ventrolateral PFC, and rostral anterior
congulate (ACC). See B. K. Hölzel, et al., “Stress Reduction Correlates with Structural Changes
in the Amygdala,” Social Cognitive and Affective Neuroscience 5 (2010): 11–17; B. K. Hölzel,
et al., “Mindfulness Practice Leads to Increases in Regional Brain Gray Matter Density,”
Psychiatry Research 191, no. 1 (2011): 36–43; B. K. Hölzel, et al., “Investigation of
Mindfulness Meditation Practitioners with Voxel-Based Morphometry,” Social Cognitive and
Affective Neuroscience 3, no. 1 (2008): 55–61; and B. K. Hölzel, et al., “Differential
Engagement of Anterior Cingulate and Adjacent Medial Frontal Cortex in Adept Meditators and
Non-meditators,” Neuroscience Letters 421, no. 1 (2007): 16–21.

19. The main brain structure involved in body awareness is the anterior insula. See A. D. Craig,
“Interoception: The Sense of the Physiological Condition of the Body,” Current Opinion on
Neurobiology 13 (2003): 500–505; Critchley, Wiens, Rotshtein, Ohman, and Dolan, 2004; N. A.
S Farb, Z. V. Segal, H. Mayberg, J. Bean, D. McKeon, Z. Fatima, et al., “Attending to the
Present: Mindfulness Meditation Reveals Distinct Neural Modes of Self-Reference,” Social
Cognitive and Affective Neuroscience 2 (2007): 313–22.; J. A. Grant, J. Courtemanche, E. G.
Duerden, G. H. Duncan, and P. Rainville, (2010). “Cortical Thickness and Pain Sensitivity in
Zen Meditators,” Emotion 10, no. 1 (2010): 43–53.

20. S. J. Banks, et al., “Amygdala-Frontal Connectivity During Emotion-Regulation,” Social

Cognitive and Affective Neuroscience 2, no. 4 (2007): 303–12. See also M. R. Milad, et al.,
“Thickness of Ventromedial Prefrontal Cortex in Humans Is Correlated with Extinction Memory,” Proceedings of the National Academy of Sciences of the United States of America
102, no. 30 (2005): 10706–11; and S. L. Rauch, L. M. Shin, and E. A. Phelps, “Neurocircuitry

Models of Posttraumatic Stress Disorder and Extinction: Human Neuroimaging Research—Past,
Present, and Future,” Biological Psychiatry 60, no. 4 (2006): 376–82.
21. A. Freud and D. T. Burlingham. War and Children (New York University Press, 1943).
22. There are three different ways in which people deal with overwhelming experiences:
dissociation (spacing out, shutting down), depersonalization (feeling like it’s not you it’s
happening to), and derealization (feeling like whatever is happening is not real).
23. My colleagues at the Justice Resource Institute created a residential treatment program for
adolescents, The van der Kolk Center at Glenhaven Academy, that implements many of the
trauma-informed treatments discussed in this book, including yoga, sensory integration,
neurofeedback and theater. http://www.jri.org/vanderkolk/about. The overarching treatment
model, attachment, self-regulation, and competency (ARC), was developed by my colleagues
Margaret Blaustein and Kristine Kinneburgh. Margaret E. Blaustein, and Kristine M. Kinniburgh, Treating Traumatic Stress in Children and Adolescents: How to Foster Resilience

Through Attachment, Self-Regulation, and Competency (New York: Guilford Press, 2012).

24. C. K. Chandler, Animal Assisted Therapy in Counseling (New York: Routledge, 2011). See also A. J. Cleveland, “Therapy Dogs and the Dissociative Patient: Preliminary Observations,” Dissociation 8, no. 4 (1995): 247–52; and A. Fine, Handbook on Animal Assisted Therapy: Theoretical Foundations and Guidelines for Practice (San Diego: Academic Press, 2010).

25. E. Warner, et al., “Can the Body Change the Score? Application of Sensory Modulation Principles in the Treatment of Traumatized Adolescents in Residential Settings,” Journal of Family Violence 28, no. 7 (2013): 729–38. See also A. J. Ayres, Sensory Integration and Learning Disorders (Los Angeles: Western Psychological Services, 1972); H. Hodgdon, et al., “Development and Implementation of Trauma-Informed Programming in Residential Schools Using the ARC Framework,” Journal of Family Violence 27, no. 8 (2013); J. LeBel, et al., “Integrating Sensory and Trauma-Informed Interventions: A Massachusetts State Initiative, Part 1,” Mental Health Special Interest Section Quarterly 33, no. 1 (2010): 1–4;

26. They appeared to have activated the vestibule-cerebellar system in the brain, which seems to be involved in self-regulation and can be damaged by early neglect.

27. Aaron R. Lyon and Karen S. Budd, “A Community Mental Health Implementation of Parent–Child Interaction Therapy (PCIT).” Journal of Child and Family Studies 19, no. 5 (2010): 654–

68. See also Anthony J. Urquiza and Cheryl Bodiford McNeil, “Parent-Child Interaction Therapy: An Intensive Dyadic Intervention for Physically Abusive Families.” Child Maltreatment 1, no 2 (1996): 134–44; J. Borrego Jr., et al. “Research Publications.” Child and
Family Behavior Therapy 20: 27-54.

28. B. A. van der Kolk, et al., “Fluoxetine in Post Traumatic Stress,” Journal of Clinical Psychiatry (1994): 517–22.

29. P. Ogden, K. Minton, and C. Pain, Trauma and the Body (New York, Norton, 2010); P. Ogden
and J. Fisher, Sensorimotor Psychotherapy: Interventions for Trauma and Attachment (New
York: Norton, 2014).

30. P. Levine, In an Unspoken Voice (Berkeley: North Atlantic Books); P. Levine, Waking the Tiger
(Berkeley: North Atlantic Books).

31. For more on impact model mugging, see http://modelmugging.org/.

32. S. Freud, Remembering, Repeating, and Working Through (Further Recommendations on the
Technique of Psychoanalysis II), standard ed. (London: Hogarth Press, 1914), p. 371

33. E. Santini, R. U. Muller, and G. J. Quirk, “Consolidation of Extinction Learning Involves
Transfer from NMDA-Independent to NMDA-Dependent Memory,” Journal of Neuroscience
21 (2001): 9009–17.

34. E. B. Foa and M. J. Kozak, “Emotional Processing of Fear: Exposure to Corrective Information,” Psychological Bulletin 99, no. 1 (1986): 20–35.

35. C. R. Brewin, “Implications for Psychological Intervention,” in Neuropsychology of PTSD:
Biological, Cognitive, and Clinical Perspectives, ed. J. J. Vasterling and C. R. Brewin (New

York: Guilford, 2005), 272.

36. T. M. Keane, “The Role of Exposure Therapy in the Psychological Treatment of PTSD,”
National Center for PTSD Clinical Quarterly 5, no. 4 (1995): 1–6.

37. E. B. Foa and R. J. McNally, “Mechanisms of Change in Exposure Therapy,” in Current
Controversies in the Anxiety Disorders, ed. R. M. Rapee (New York: Guilford, 1996), 329–43.



38. J. D. Ford and P. Kidd, “Early Childhood Trauma and Disorders of Extreme Stress as Predictors of Treatment Outcome with Chronic PTSD,” Journal of Traumatic Stress 18 (1998):
743–61. See also A. McDonagh-Coyle, et al., “Randomized Trial of Cognitive-Behavioral Therapy for Chronic Posttraumatic Stress Disorder in Adult Female Survivors of Childhood
Sexual Abuse,” Journal of Consulting and Clinical Psychology 73, no. 3 (2005): 515–24; Institute of Medicine of the National Academies, Treatment of Posttraumatic Stress Disorder:
An Assessment of the Evidence (Washington: National Academies Press, 2008); and R. Bradley,
et al., “A Multidimensional Meta-Analysis of Psychotherapy for PTSD,” American Journal of
Psychiatry 162, no. 2 (2005): 214–27.

39. J. Bisson, et al., “Psychological Treatments for Chronic Posttraumatic Stress Disorder:
Systematic Review and Meta-Analysis,” British Journal of Psychiatry 190 (2007): 97–104. See
also L. H. Jaycox, E. B. Foa, and A. R. Morrall, “Influence of Emotional Engagement and Habituation on Exposure Therapy for PTSD,” Journal of Consulting and Clinical Psychology
66 (1998): 185–92.

40. “Dropouts: in prolonged exposure (n = 53 [38%]); in present-centered therapy (n = 30 [21%])
(P = .002). The control group also had a high rate of casualties: 2 nonsuicidal deaths, 9 psychiatric hospitalizations, and 3 suicide attempts.” P. P. Schnurr, et al., “Cognitive Behavioral
Therapy for Posttraumatic Stress Disorder in Women,” JAMA 297, no. 8 (2007): 820–30.
41. R. Bradley, et al., “A Multidimensional Meta-Analysis of Psychotherapy for PTSD,” American
Journal of Psychiatry 162, no. 2 (2005): 214–27.
42. J. H. Jaycox and E. B. Foa, “Obstacles in Implementing Exposure Therapy for PTSD: Case
Discussions and Practical Solutions,” Clinical Psychology and Psychotherapy 3, no. 3 (1996):
176–84. See also E. B. Foa, D. Hearst-Ikeda, and K. J. Perry, “Evaluation of a Brief Cognitive-
Behavioral Program for the Prevention of Chronic PTSD in Recent Assault Victims,” Journal of
Consulting and Clinical Psychology 63 (1995): 948–55.
43. Alexander McFarlane personal communication.
44. R. K. Pitman, et al., “Psychiatric Complications During Flooding Therapy for Posttraumatic
Stress Disorder,” Journal of Clinical Psychiatry 52, no. 1 (January 1991): 17–20.
45. Jean Decety, Kalina J. Michalska, and Katherine D. Kinzler, “The Contribution of Emotion and
Cognition to Moral Sensitivity: A Neurodevelopmental Study,” Cerebral Cortex 22 no. 1 (2012):
209–20; Jean Decety, C. Daniel Batson, “Neuroscience Approaches to Interpersonal Sensitivity,” 2, nos. 3-4 (2007).
46. K. H. Seal, et al., “VA Mental Health Services Utilization in Iraq and Afghanistan Veterans in

the First Year of Receiving New Mental Health Diagnoses," Journal of Traumatic Stress 23
(2010): 5–16.
47. L. Jerome, "(+/-)-3,4-Methylenedioxymethamphetamine (MDMA, "Ecstasy") Investigator's
Brochure," December 2007, available at
www.maps.org/research/mdma/protocol/ib_mdma_new08.pdf (accessed August 16, 2012).
48. John H. Krystal, et al. "Chronic 3, 4-methylenedioxymethamphetamine (MDMA) use: effects
on mood and neuropsychological function?." The American Journal of Drug and Alcohol Abuse
18.3 (1992): 331-341.
49. Mithoefer, Michael C., et al., "The safety and efficacy of±3, 4-methylenedioxymethamphetamine-assisted psychotherapy in subjects with chronic, treatment-
resistant posttraumatic stress disorder: the first randomized controlled pilot study." Journal of
Psychopharmacology 25.4 (2011): 439-452; M. C. Mithoefer, et al., "Durability of Improvement
in Post-traumatic Stress Disorder Symptoms and Absence of Harmful Effects or Drug Dependency after 3, 4-Methylenedioxymethamphetamine-Assisted Psychotherapy: A Prospective Long-Term Follow-up Study," Journal of Psychopharmacology 27, no. 1 (2013):
28–39.
50. J. D. Bremner, "Neurobiology of Post-traumatic Stress Disorder," in Posttraumatic Stress
Disorder: A Critical Review, ed. R. S. Rynoos (Lutherville, MD: Sidran Press, 1994), 43–64.
51. http://cdn.nextgov.com/nextgov/interstitial.html?

v=2.1.1&rf=http%3A%2F%2Fwww.nextgov.com%2Fhealth%2F2011%2F01%2Fmilitarys-drug-policy-threatens-troops-health-doctors-say%2F48321%2F.

52. J. R. T. Davidson, “Drug Therapy of Post-traumatic Stress Disorder,” British Journal of Psychiatry 160 (1992): 309–314. See also R. Famularo, R. Kinscherff, and T. Fenton, “Propranolol Treatment for Childhood Posttraumatic Stress Disorder Acute Type,” American Journal of Disorders of Childhood 142 (1988): 1244–47; F. A. Fesler, “Valproate in Combat-Related Posttraumatic Stress Disorder,” Journal of Clinical Psychiatry 52 (1991): 361–64; B. H. Herman, et al., “Naltrexone Decreases Self-Injurious Behavior,” Annals of Neurology 22 (1987): 530–34; and B. A. van der Kolk, et al., “Fluoxetine in Posttraumatic Stress Disorder.”

53. B. Van der Kolk, et al., “A Randomized Clinical Trial of EMDR, Fluoxetine and Pill Placebo in the Treatment of PTSD: Treatment Effects and Long-Term Maintenance,” Journal of Clinical Psychiatry 68 (2007): 37–46.

54. R. A. Bryant, et al., “Treating Acute Stress Disorder: An Evaluation of Cognitive Behavior Therapy and Supportive Counseling Techniques,” American Journal of Psychiatry 156, no. 11 (November 1999): 1780–86; N. P. Roberts et al., “Early Psychological Interventions to Treat Acute Traumatic Stress Symptoms,” Cochran Database of Systematic Reviews 3 (March 2010).

55. This includes the alpha1 receptor antagonist prazosin, the alpha2 receptor antagonist clonidine, and the beta receptor antagonist propranolol. See M. J. Friedman and J. R. Davidson,

“Pharmacotherapy for PTSD,” in Handbook of PTSD: Science and Practice, ed. M. J. Friedman,
T. M. Keane, and P. A. Resick (New York: Guilford Press, (2007), 376.
56. M. A. Raskind, et al., “A Parallel Group Placebo Controlled Study of Prazosin for Trauma
Nightmares and Sleep Disturbance in Combat Veterans with Post-traumatic Stress Disorder,”
Biological Psychiatry 61, no. 8 (2007): 928–34. F. B. Taylor, et al., “Prazosin Effects on Objective Sleep Measures and Clinical Symptoms in Civilian Trauma Posttraumatic Stress
Disorder: A Placebo-Controlled Study,” Biological Psychiatry 63, no. 6 (2008): 629–32.
57. Lithium, lamotrigin, carbamazepine, divalproex, gabapentin, and topiramate may help to
control trauma-related aggression and irritability. Valproate has been shown to be effective in
several case reports with PTSD, including with military veteran patients with chronic PTSD.
Friedman and Davidson, “Pharmacotherapy for PTSD”; F. A. Fesler, “Valproate in Combat-
Related Posttraumatic Stress Disorder,” Journal of Clinical Psychiatry 52, no. 9 (1991): 361–64.
The following study showed a 37.4 percent reduction in PTSD S. Akuchekian and S. Amanat,
“The Comparison of Topiramate and Placebo in the Treatment of Posttraumatic Stress Disorder:
A Randomized, Double-Blind Study,” Journal of Research in Medical Sciences 9, no. 5 (2004):
240–44.
58. G. Bartzokis, et al., “Adjunctive Risperidone in the Treatment of Chronic Combat-Related

Posttraumatic Stress Disorder," Biological Psychiatry 57, no. 5 (2005): 474–79. See also D. B.
Reich, et al., "A Preliminary Study of Risperidone in the Treatment of Posttraumatic Stress
Disorder Related to Childhood Abuse in Women," Journal of Clinical Psychiatry 65, no. 12
(2004): 1601–1606.
59. The other methods include interventions that usually help traumatized individuals sleep, like
the antidepressant trazodone, binaural beat apps, light/sound machines like Proteus
(www.brainmachines.com), HRV monitors like hearthmath
(http://www.heartmath.com/), and
iRest, an effective yoga-based intervention. (http://www.irest.us/)
60. D. Wilson, "Child's Ordeal Shows Risks of Psychosis Drugs for Young," New York Times,
September 1, 2010, available at
http://www.nytimes.com/2010/09/02/business/02kids.html?
pagewanted=all&_r=0.
61. M. Olfson, et al., "National Trends in the Office-Based Treatment of Children, Adolescents,
and Adults with Antipsychotics," Archives of General Psychiatry 69, no. 12 (2012): 1247–56.
62. E. Harris, et al., "Perspectives on Systems of Care: Concurrent Mental Health Therapy Among
Medicaid-Enrolled Youths Starting Antipsychotic Medications," FOCUS 10, no. 3 (2012): 401–
407.
63. B. A. Van der Kolk, "The Body Keeps the Score: Memory and the Evolving Psychobiology of
Posttraumatic Stress," Harvard Review of Psychiatry 1, no. 5 (1994): 253–65.

64. B. Brewin, “Mental Illness is the Leading Cause of Hospitalization for Active-Duty Troops,”
Nextgov.com, May 17, 2012, http://www.nextgov.com/health/2012/05/mental-illness-leading-
cause-hospitalization-active-duty-troops/55797/.
65. Mental health drug expenditures, Department of Veterans affairs.
http://www.veterans.senate.gov/imo/media/doc/For%20the%20Record%20-%20CCHR%204.30.14.pdf.

CHAPTER 14: LANGUAGE: MIRACLE AND TYRANNY

1. Dr. Spencer Eth to Bessel A. van der Kolk, March 2002.
2. J. Breuer and S. Freud, “The Physical Mechanisms of Hysterical Phenomena,” in The Standard
Edition of the Complete Psychological Works of Sigmund Freud (London: Hogarth Press, 1893).
J. Breuer and S. Freud, Studies on Hysteria (New York: Basic Books, 2009).
3. T. E. Lawrence, Seven Pillars of Wisdom (New York: Doubleday, 1935).
4. E. B. Foa, et al., “The Posttraumatic Cognitions Inventory (PTCI): Development and Validation,” Psychological Assessment 11, no. 3 (1999): 303–314.
5. K. Marlantes, What It Is Like to Go to War (New York: Grove Press, 2011).
6. Ibid., 114.
7. Ibid., 129.
8. H. Keller, The World I Live In (1908), ed. R. Shattuck (New York: NYRB Classics, 2004). See
also R. Shattuck, “A World of Words,” New York Review of Books, February 26, 2004.
9. H. Keller, The Story of My Life, ed. R. Shattuck and D. Herrmann (New York: Norton, 2003).
10. W. M. Kelley, et al., “Finding the Self? An Event-Related fMRI Study,” Journal of Cognitive
Neuroscience 14, no. 5 (2002): 785–94. See also N. A. Farb, et al., “Attending to the Present:

Mindfulness Meditation Reveals Distinct Neural Modes of Self-Reference," Social Cognitive
and Affective Neuroscience 2, no. 4 (2007): 313–22. P. M. Niedenthal, "Embodying Emotion,"
Science 316, no. 5827 (2007): 1002–1005; and J. M. Allman, "The Anterior Cingulate Cortex,"
Annals of the New York Academy of Sciences 935, no. 1 (2001): 107–117.
11. J. Kagan, dialogue with the Dalai Lama, Massachusetts Institute of Technology, 2006.
http://www.mindandlife.org/about/history/.
12. A. Goldman and F. de Vignemont, "Is Social Cognition Embodied?" Trends in Cognitive
Sciences 13, no. 4 (2009): 154–59. See also A. D. Craig, "How Do You Feel—Now? The Anterior Insula and Human Awareness," Nature Reviews Neuroscience 10 (2009): 59–70; H. D.
Critchley, "Neural Mechanisms of Autonomic, Affective, and Cognitive Integration," Journal of
Comparative Neurology 493, no. 1 (2005): 154–66; T. D. Wager, et al., "Prefrontal-Subcortical
Pathways Mediating Successful Emotion Regulation," Neuron 59, no. 6 (2008): 1037–50; K. N.
Ochsner, et al., "Rethinking Feelings: An fMRI Study of the Cognitive Regulation of Emotion,"
Journal of Cognitive Neuroscience 14, no. 8 (2002): 1215–29; A. D'Argembeau, et al., "Self-
Reflection Across Time: Cortical Midline Structures Differentiate Between Present and Past
Selves," Social Cognitive and Affective Neuroscience 3, no. 3 (2008): 244–52; Y. Ma, et al.,
"Sociocultural Patterning of Neural Activity During Self-Reflection," Social Cognitive

and
Affective Neuroscience 9, no. 1 (2014): 73–80; R. N. Spreng, R. A. Mar, and A. S. Kim, “The
Common Neural Basis of Autobiographical Memory, Prospection, Navigation, Theory of Mind,
and the Default Mode: A Quantitative Meta-Analysis,” Journal of Cognitive Neuroscience 21,
no. 3 (2009): 489–510; H. D. Critchley, “The Human Cortex Responds to an Interoceptive
Challenge,” Proceedings of the National Academy of Sciences of the United States of America
101, no. 17 (2004): 6333–34; and C. Lamm, C. D. Batson, and J. Decety, “The Neural Substrate
of Human Empathy: Effects of Perspective-Taking and Cognitive Appraisal,” Journal of
Cognitive Neuroscience 19, no. 1 (2007): 42–58.

13. J. W. Pennebaker, Opening Up: The Healing Power of Expressing Emotions (New York:
Guilford Press, 2012), 12.

14. Ibid., p. 19.

15. Ibid., p.35.

16. Ibid., p. 50.

17. J. W. Pennebaker, J. K. Kiecolt-Glaser, and R. Glaser, “Disclosure of Traumas and Immune
Function: Health Implications for Psychotherapy,” Journal of Consulting and Clinical
Psychology 56, no. 2 (1988): 239–45.

18. D. A. Harris, “Dance/Movement Therapy Approaches to Fostering Resilience and Recovery
Among African Adolescent Torture Survivors,” Torture 17, no. 2 (2007): 134–55; M. Bensimon,
D. Amir, and Y. Wolf, “Drumming Through Trauma: Music Therapy with Post-traumatic

Soldiers," Arts in Psychotherapy 35, no. 1 (2008): 34–48; M. Weltman, "Movement Therapy
with Children Who Have Been Sexually Abused," American Journal of Dance Therapy 9, no. 1
(1986): 47–66; H. Englund, "Death, Trauma and Ritual: Mozambican Refugees in Malawi,"
Social Science & Medicine 46, no. 9 (1998): 1165–74; H. Tefferi, Building on Traditional
Strengths: The Unaccompanied Refugee Children from South Sudan (1996); D. Tolfree,
Restoring Playfulness: Different Approaches to Assisting Children Who Are Psychologically
Affected by War or Displacement (Stockholm: Rädda Barnen, 1996), 158–73; N. Boothby,
"Mobilizing Communities to Meet the Psychosocial Needs of Children in War and Refugee
Crises," in Minefields in Their Hearts: The Mental Health of Children in War and Communal
Violence, ed. R. Apfel and B. Simon (New Haven, Yale Universit Press, 1996), 149–64; S.
Sandel, S. Chaiklin, and A. Lohn, Foundations of Dance/Movement Therapy: The Life and Work
of Marian Chace (Columbia, MD: American Dance Therapy Association, 1993); K. Callaghan,
"Movement Psychotherapy with Adult Survivors of Political Torture and Organized Violence,"
Arts in Psychotherapy 20, no. 5 (1993): 411–21; A. E. L. Gray, "The Body Remembers: Dance
Movement Therapy with an Adult Survivor of Torture," American Journal of Dance Therapy
23, no. 1 (2001): 29–43.

19. A. M. Krantz, and J. W. Pennebaker, "Expressive Dance, Writing, Trauma, and

Health: When
Words Have a Body.” Whole Person Healthcare 3 (2007): 201–29.
20. P. Fussell, The Great War and Modern Memory (London: Oxford University Press, 1975).
21. Theses findings have been replicated in the following studies: J. D. Bremner, “Does Stress
Damage the Brain?” Biological Psychiatry 45, no. 7 (1999): 797–805; I. Liberzon, et al., “Brain
Activation in PTSD in Response to Trauma-Related Stimuli,” Biological Psychiatry 45, no. 7
(1999): 817–26; L. M. Shin, et al., “Visual Imagery and Perception in Posttraumatic Stress
Disorder: A Positron Emission Tomographic Investigation,” Archives of General Psychiatry 54,
no. 3 (1997): 233–41; L. M. Shin, et al., “Regional Cerebral Blood Flow During Script-Driven
Imagery in Childhood Sexual Abuse–Related PTSD: A PET Investigation,” American Journal
of Psychiatry 156, no. 4 (1999): 575–84.
22. I am not sure if this term originated with me or with Peter Levine. I own a video where he
credits me, but most of what I have learned about pendulation I’ve learned from him.
23. A small body of evidence offers support for claims that exposure/acupoints stimulation yields
stronger outcomes and exposures strategies that incorporate conventional relaxation techniques.
(www.vetcases.com). D. Church, et al., “Single-Session Reduction of the Intensity of Traumatic
Memories in Abused Adolescents After EFT: A Randomized Controlled Pilot Study,”
Traumatology 18, no. 3 (2012): 73–79; and D. Feinstein and D. Church, “Modulating

Gene
Expression Through Psychotherapy: The Contribution of Noninvasive Somatic Interventions,”
Review of General Psychology 14, no. 4 (2010): 283–95.
24. T. Gil, et al., “Cognitive Functioning in Post-traumatic Stress Disorder,” Journal of Traumatic
Stress 3, no. 1 (1990): 29–45; J. J. Vasterling, et al., “Attention, Learning, and Memory
Performances and Intellectual Resources in Vietnam Veterans: PTSD and No Disorder
Comparisons,” Neuropsychology 16, no. 1 (2002): 5.
25. In a neuroimaging study the PTSD subjects deactivated the speech area of their brain, Broca’s
area, in response to neutral words. In other words: the decreased Broca’s area functioning that
we had found in PTSD patients (see chapter 3) did not only occur in response to traumatic
memories; it also happened when they were asked to pay attention to neutral words. This means
that, as a group, traumatized patients have a harder time to articulate what they feel and think
about ordinary events. The PTSD group also had decreased activation of the medial prefrontal
cortex (mPFC), the frontal lobe area that, as we have seen, conveys awareness of one’s self, and
dampens activation of the amygdala, the smoke detector. This made it harder for them to
suppress the brain’s fear response in response to a simple language task and again, made it
harder to pay attention and go on with their lives. See: Moores, K. A., Clark, C. R., McFarlane,
A. C., Brown, G. C., Puce, A., & Taylor, D. J. (2008). Abnormal recruitment of working

memory updating networks during maintenance of trauma-neutral information in post-traumatic
stress disorder. Psychiatry Research: Neuroimaging, 163(2), 156–170.
26. J. Breuer and S. Freud, “The Physical Mechanisms of Hysterical Phenomena,” in The Standard
Edition of the Complete Psychological Works of Sigmund Freud (London: Hogarth Press, 1893).
27. D. L. Schacter, Searching for Memory (New York: Basic Books, 1996).

CHAPTER 15: LETTING GO OF THE PAST: EMDR

1. F. Shapiro, EMDR: The Breakthrough Eye Movement Therapy for Overcoming Anxiety, Stress,
and Trauma (New York: Basic Books, 2004).
2. B. A. van der Kolk, et al., “A Randomized Clinical Trial of Eye Movement Desensitization and
Reprocessing (EMDR), Fluoxetine, and Pill Placebo in the Treatment of Posttraumatic Stress
Disorder: Treatment Effects and Long-Term Maintenance,” Journal of Clinical Psychiatry 68,
no. 1 (2007): 37–46.
3. J. G. Carlson, et al., “Eye Movement Desensitization and Reprocessing (EDMR) Treatment for
Combat-Related Posttraumatic Stress Disorder,” Journal of Traumatic Stress 11, no. 1 (1998):
3–24.
4. J. D. Payne, et al., “Sleep Increases False Recall of Semantically Related Words in the Deese-
Roediger-McDermott Memory Task,” Sleep 29 (2006): A373.
5. B. A. van der Kolk and C. P. Ducey, “The Psychological Processing of Traumatic Experience:
Rorschach Patterns in PTSD,” Journal of Traumatic Stress 2, no. 3 (1989): 259–74.

6. M. Jouvet, The Paradox of Sleep: The Story of Dreaming, trans. Laurence Garey (Cambridge,
MA: MIT Press, 1999).
7. R. Greenwald, “Eye Movement Desensitization and Reprocessing (EMDR): A New Kind of
Dreamwork?” Dreaming 5, no. 1 (1995): 51–55.
8. R. Cartwright, et al., “REM Sleep Reduction, Mood Regulation and Remission in Untreated
Depression,” Psychiatry Research 121, no. 2 (2003): 159–67. See also R. Cartwright, et al.,
“Role of REM Sleep and Dream Affect in Overnight Mood Regulation: A Study of Normal
Volunteers,” Psychiatry Research 81, no. 1 (1998): 1–8.
9. R. Greenberg, C. A. Pearlman, and D. Gampel, “War Neuroses and the Adaptive Function of
REM Sleep,” British Journal of Medical Psychology 45, no. 1 1972): 27–33. Ramon Greenberg
and Chester Pearlman, as well as our lab, found that traumatized veterans wake themselves up
as soon as they enter a REM period. While many traumatized individuals use alcohol to help
them sleep, they thereby keep themselves from the full benefits of dreaming (the integration and
transformation of memory) and thereby may contribute to preventing the resolution of their
PTSD.
10. B. van der Kolk, et al., “Nightmares and Trauma: A Comparison of Nightmares After Combat
with Lifelong Nightmares in Veterans,” American Journal of Psychiatry 141, no. 2 (1984): 187–
90.

11. N. Breslau, et al., “Sleep Disturbance and Psychiatric Disorders: A Longitudinal Epidemiological Study of Young Adults,” Biological Psychiatry 39, no. 6 (1996): 411–18.
12. R. Stickgold, et al., “Sleep-Induced Changes in Associative Memory,” Journal of Cognitive
Neuroscience 11, no. 2 (1999): 182–93. See also R. Stickgold, “Of Sleep, Memories and Trauma,” Nature Neuroscience 10, no. 5 (2007): 540–42; and B. Rasch, et al., “Odor Cues
During Slow-Wave Sleep Prompt Declarative Memory Consolidation,” Science 315, no. 5817
(2007): 1426–29.
13. E. J. Wamsley, et al., “Dreaming of a Learning Task Is Associated with Enhanced Sleep-
Dependent Memory Consolidation,” Current Biology 20, no. 9, (May 11, 2010): 850–55.
14. R. Stickgold, “Sleep-Dependent Memory Consolidation,” Nature 437 (2005): 1272–78.
15. R. Stickgold, et al., “Sleep-Induced Changes in Associative Memory,” Journal of Cognitive
Neuroscience 11, no. 2 (1999): 182–93.
16. J. Williams, et al., “Bizarreness in Dreams and Fantasies: Implications for the Activation-
Synthesis Hypothesis,” Consciousness and Cognition 1, no. 2 (1992): 172–85. See also Stickgold, et al., “Sleep-Induced Changes in Associative Memory.”
17. M. P. Walker, et al., “Cognitive Flexibility Across the Sleep-Wake Cycle: REM-Sleep Enhancement of Anagram Problem Solving,” Cognitive Brain Research 14 (2002): 317–24.
18. R. Stickgold, “EMDR: A Putative Neurobiological Mechanism of Action,” Journal of Clinical
Psychology 58 (2002): 61–75.
19. There are several studies on how eye movements help to process and transform traumatic

memories. M. Sack, et al., “Alterations in Autonomic Tone During Trauma Exposure Using Eye
Movement Desensitization and Reprocessing (EMDR)—Results of a Preliminary Investigation,” Journal of Anxiety Disorders 22, no. 7 (2008): 1264–71; B. Letizia, F. Andrea,
and C. Paolo, Neuroanatomical Changes After Eye Movement Desensitization and Reprocessing
(EMDR) Treatment in Posttraumatic Stress Disorder, The Journal of Neuropsychiatry and
Clinical Neurosciences, 19, no. 4 (2007): 475–76; P. Levin, S. Lazrove, and B. van der Kolk,
(1999). What Psychological Testing and Neuroimaging Tell Us About the Treatment of Posttraumatic Stress Disorder by Eye Movement Desensitization and Reprocessing, Journal of
Anxiety Disorders, 13, nos. 1–2, 159–72; M. L. Harper, T. Rasolkhani Kalhorn, J. F. Drozd, “On
the Neural Basis of EMDR Therapy: Insights from Qeeg Studies, Traumatology, 15, no. 2
(2009): 81–95; K. Lansing, D. G. Amen, C. Hanks, L. Rudy, “High-Resolution Brain SPECT
Imaging and Eye Movement Desensitization and Reprocessing in Police Officers with PTSD,”
The Journal of Neuropsychiatry and Clinical Neurosciences 17, no. 4 (2005): 526–32; T. Ohtani, K. Matsuo, K. Kasai, T. Kato, and N. Kato, “Hemodynamic Responses of Eye Movement Desensitization and Reprocessing in Posttraumatic Stress Disorder. Neuroscience
Research, 65, no. 4 (2009): 375–83; M. Pagani, G. Högberg, D. Salmaso, D. Nardo, Ö. Sundin,
C. Jonsson, and T. Hällström, “Effects of EMDR Psychotherapy on 99mtc-HMPAO Distribution

in Occupation-Related Post-Traumatic Stress Disorder," Nuclear Medicine Communications 28
(2007): 757–65; H. P. Söndergaard and U. Elofsson, "Psychophysiological Studies of EMDR,"
Journal of EMDR Practice and Research 2, no. 4 (2008): 282–88.

CHAPTER 16: LEARNING TO INHABIT YOUR BODY: YOGA

1. Acupuncture and acupressure are widely practiced among trauma-oriented clinicians and is
beginning to be systematically studied as a treatment for clinical PTSD. M. Hollifield, et al.,
"Acupuncture for Posttraumatic Stress Disorder: A Randomized Controlled Pilot Trial," Journal
of Nervous and Mental Disease 195, no. 6 (2007): 504–513. Studies that use fMRI to measure
the effects of acupuncture on the areas of the brain associated with fear report acupuncture to
produce rapid regulation of these brain regions. K. K. Hui, et al., "The Integrated Response of
the Human Cerebro-Cerebellar and Limbic Systems to Acupuncture Stimulation at ST 36 as
Evidenced by fMRI," NeuroImage 27 (2005): 479–96; J. Fang, et al., "The Salient
Characteristics of the Central Effects of Acupuncture Needling: Limbic-Paralimbic-Neocortical
Network Modulation," Human Brain Mapping 30 (2009): 1196–206. D. Feinstein, "Rapid
Treatment of PTSD: Why Psychological Exposure with Acupoint Tapping May Be Effective,"
Psychotherapy: Theory, Research, Practice, Training 47, no. 3 (2010): 385–402; D. Church, et
al., "Psychological Trauma Symptom Improvement in Veterans Using EFT (Emotional Freedom

Technique): A Randomized Controlled Trial," Journal of Nervous and Mental Disease 201
(2013): 153–60; D. Church, G. Yount, and A. J. Brooks, "The Effect of Emotional Freedom
Techniques (EFT) on Stress Biochemistry: A Randomized Controlled Trial," Journal of Nervous
and Mental Disease 200 (2012): 891–96; R. P. Dhond, N. Kettner, and V. Napadow,
"Neuroimaging Acupuncture Effects in the Human Brain," Journal of Alternative and
Complementary Medicine 13 (2007): 603–616; K. K. Hui, et al., "Acupuncture Modulates the
Limbic System and Subcortical Gray Structures of the Human Brain: Evidence from fMRI
Studies in Normal Subjects," Human Brain Mapping 9 (2000): 13–25.

2. M. Sack, J. W. Hopper, and F. Lamprecht, "Low Respiratory Sinus Arrhythmia and Prolonged
Psychophysiological Arousal in Posttraumatic Stress Disorder: Heart Rate Dynamics and
Individual Differences in Arousal Regulation," Biological Psychiatry 55, no. 3 (2004):
284–90.
See also H. Cohen, et al., "Analysis of Heart Rate Variability in Posttraumatic Stress Disorder
Patients in Response to a Trauma-Related Reminder," Biological Psychiatry 44, no. 10 (1998):
1054–59; H. Cohen, et al., "Long-Lasting Behavioral Effects of Juvenile Trauma in an Animal
Model of PTSD Associated with a Failure of the Autonomic Nervous System to Recover,"
European Neuropsychopharmacology 17, no. 6 (2007): 464–77; and H. Wahbeh and B. S. Oken,
"Peak High-Frequency HRV and Peak Alpha Frequency Higher in PTSD," Applied

Psychophysiology and Biofeedback 38, no. 1 (2013): 57–69.

3. J. W. Hopper, et al., “Preliminary Evidence of Parasympathetic Influence on Basal Heart Rate in Posttraumatic Stress Disorder,” Journal of Psychosomatic Research 60, no. 1 (2006): 83–90.

4. Arieh Shalev at Hadassah Medical School in Jerusalem and Roger Pitman’s experiments at Harvard also pointed in this direction: A. Y. Shalev, et al., “Auditory Startle Response in Trauma Survivors with Posttraumatic Stress Disorder: A Prospective Study,” American Journal of Psychiatry 157, no. 2 (2000): 255–61; R. K. Pitman, et al., “Psychophysiologic Assessment of Posttraumatic Stress Disorder Imagery in Vietnam Combat Veterans,” Archives of General Psychiatry 44, no. 11 (1987): 970–75; A. Y. Shalev, et al., “A Prospective Study of Heart Rate Response Following Trauma and the Subsequent Development of Posttraumatic Stress Disorder,” Archives of General Psychiatry 55, no. 6 (1998): 553–59.

5. P. Lehrer, Y. Sasaki, and Y. Saito, “Zazen and Cardiac Variability,” Psychosomatic Medicine 61, no. 6 (1999): 812–21. See also R. Sovik, “The Science of Breathing: The Yogic View,” Progress in Brain Research 122 (1999): 491–505; P. Philippot, G. Chapelle, and S. Blairy, “Respiratory Feedback in the Generation of Emotion,” Cognition & Emotion 16, no. 5 (2002): 605–627; A. Michalsen, et al., “Rapid Stress Reduction and Anxiolysis Among Distressed Women as a Consequence of a Three-Month Intensive Yoga Program,” Medcal Science Monitor 11,

no. 12
(2005): 555–61; G. Kirkwood et al., “Yoga for Anxiety: A Systematic Review of the Research
Evidence,” British Journal of Sports Medicine 39 (2005): 884–91; K. Pilkington, et al., “Yoga
for Depression: The Research Evidence,” Journal of Affective Disorders 89 (2005): 13–24; and
P. Gerbarg and R. Brown, “Yoga: A Breath of Relief for Hurricane Katrina Refugees,” Current
Psychiatry 4 (2005): 55–67.
6. B. Cuthbert et al., “Strategies of Arousal Control: Biofeedback, Meditation, and Motivation,”
Journal of Experimental Psychology 110 (1981): 518–46. See also S. B. S. Khalsa, “Yoga as a
Therapeutic Intervention: A Bibliometric Analysis of Published Research Studies,” Indian
Journal of Physiology and Pharmacology 48 (2004): 269–85; M. M. Delmonte, “Meditation as
a Clinical Intervention Strategy: A Brief Review,” International Journal of Psychosomatics 33
(1986): 9–12; I. Becker, “Uses of Yoga in Psychiatry and Medicine,” in Complementary and
Alternative Medicine and Psychiatry, vol. 19, ed. P. R. Muskin PR (Washington: American
Psychiatric Press, 2008); L. Bernardi, et al., “Slow Breathing Reduces Chemoreflex Response to
Hypoxia and Hypercapnia, and Increases Baroreflex Sensitivity,” Journal of Hypertension 19,
no. 12 (2001): 2221–29; R. P. Brown and P. L. Gerbarg, “Sudarshan Kriya Yogic Breathing in

the Treatment of Stress, Anxiety, and Depression: Part I: Neurophysiologic Model," Journal of
Alternative and Complementary Medicine 11 (2005): 189–201; R. P. Brown and P. L. Gerbarg,
"Sudarshan Kriya Yogic Breathing in the Treatment of Stress, Anxiety, and Depression: Part II:
Clinical Applications and Guidelines," Journal of Alternative and Complementary Medicine 11
(2005): 711–17; C. C. Streeter, et al., "Yoga Asana Sessions Increase Brain GABA Levels: A
Pilot Study," Journal of Alternative and Complementary Medicine 13 (2007): 419–26; and C. C.
Streeter, et al., "Effects of Yoga Versus Walking on Mood, Anxiety, and Brain GABA Levels: A
Randomized Controlled MRS Study," Journal of Alternative and Complementary Medicine 16
(2010): 1145–52.

7. There are dozens of scientific articles showing the positive effect of yoga for various medical
conditions. The following is a small sample: S. B. Khalsa, "Yoga as a Therapeutic Intervention";
P. Grossman, et al., "Mindfulness-Based Stress Reduction and Health Benefits: A Meta-Analysis," Journal of Psychosomatic Research 57 (2004): 35–43; K. Sherman, et al., "Comparing Yoga, Exercise, and a Self-Care Book for Chronic Low Back Pain: A Randomized,
Controlled Trial," Annals of Internal Medicine 143 (2005): 849–56; K. A. Williams, et al., "Effect of Iyengar Yoga Therapy for Chronic Low Back Pain," Pain 115 (2005): 107–117; R. B.
Saper, et al., "Yoga for Chronic Low Back Pain in a Predominantly Minority Population: A Pilot

Randomized Controlled Trial," Alternative Therapies in Health and Medicine 15 (2009): 18–27;

J. W. Carson, et al., "Yoga for Women with Metastatic Breast Cancer: Results from a Pilot

Study," Journal of Pain and Symptom Management 33 (2007): 331–41.

8. B. A. van der Kolk, et al., "Yoga as an Adjunctive Therapy for PTSD," Journal of Clinical

Psychiatry 75, no. 6 (June 2014): 559–65.

9. A California company, HeartMath, has developed nifty devices and computer games that are

both fun and effective in helping people to achieve better HRV. To date nobody has studied

whether simple devices such as those developed by HeartMath can reduce PTSD symptoms, but

this very likely the case. (see in www.heartmath.org.)

10. As of this writing there are twenty-four apps available on iTunes that claim to be able to help

increase HRV, such as emWave, HeartMath, and GPS4Soul.

11. B. A. van der Kolk, "Clinical Implications of Neuroscience Research in PTSD," Annals of the

New York Academy of Sciences 1071, no. 1 (2006): 277–93.

12. S. Telles, et al., "Alterations of Auditory Middle Latency Evoked Potentials During Yogic

Consciously Regulated Breathing and Attentive State of Mind," International Journal of Psychophysiology 14, no. 3 (1993): 189–98. See also P. L. Gerbarg, "Yoga and Neuro-Psychoanalysis," in Bodies in Treatment: The Unspoken Dimension, ed. Frances Sommer

Anderson (New York, Analytic Press, 2008), 127–50.

13. D. Emerson and E. Hopper, Overcoming Trauma Through Yoga: Reclaiming Your Body

(Berkeley, North Atlantic Books, 2011).

14. A. Damasio, The Feeling of What Happens: Body and Emotion in the Making of Consciousness (New York, Hartcourt, 1999).

15. “Interoception” is the scientific name for this basic self-sensing ability. Brain-imaging studies of traumatized people have repeatedly shown problems in the areas of the brain related to physical self-awareness, particularly an area called the insula. J. W. Hopper, et al., “Neural Correlates of Reexperiencing, Avoidance, and Dissociation in PTSD: Symptom Dimensions and Emotion Dysregulation in Responses to Script-Driven Trauma Imagery,” Journal of Traumatic Stress 20, no. 5 (2007): 713–25. See also I. A. Strigo, et al., “Neural Correlates of Altered Pain Response in Women with Posttraumatic Stress Disorder from Intimate Partner Violence,” Biological Psychiatry 68, no. 5 (2010): 442–50; G. A. Fonzo, et al., “Exaggerated and Disconnected Insular-Amygdalar Blood Oxygenation Level-Dependent Response to Threat-Related Emotional Faces in Women with Intimate-Partner Violence Posttraumatic Stress Disorder,” Biological Psychiatry 68, no. 5 (2010): 433–41; P. A. Frewen, et al., “Social Emotions and Emotional Valence During Imagery in Women with PTSD: Affective and Neural Correlates,” Psychological Trauma: Theory, Research, Practice, and Policy 2, no. 2 (2010): 145–57; K. Felmingham, et al., “Dissociative Responses to Conscious and Non-conscious Fear Impact Underlying Brain Function in Post-traumatic Stress Disorder,” Psychological

Medicine
38, no. 12 (2008): 1771–80; A. N. Simmons, et al., “Functional Activation and Neural Networks
in Women with Posttraumatic Stress Disorder Related to Intimate Partner Violence,” Biological
Psychiatry 64, no. 8 (2008): 681–90; R. J. L. Lindauer, et al., “Effects of Psychotherapy on
Regional Cerebral Blood Flow During Trauma Imagery in Patients with Post-traumatic Stress
Disorder: A Randomized Clinical Trial,” Psychological Medicine 38, no. 4 (2008): 543–54 and
A. Etkin and T. D. Wager, “Functional Neuroimaging of Anxiety: A Meta-Analysis of Emotional Processing in PTSD, Social Anxiety Disorder, and Specific Phobia,” American Journal of Psychiatry 164, no. 10 (2007): 1476–88.
16. J. C. Nemiah and P. E. Sifneos, “Psychosomatic Illness: A Problem in Communication,”
Psychotherapy and Psychosomatics 18, no. 1–6 (1970): 154–60. See also G. J. Taylor, R. M.
Bagby, and J. D. A. Parker, Disorders of Affect Regulation: Alexithymia in Medical and Psychiatric Illness (Cambridge: Cambridge University Press, 1997).
17. A. R. Damásio, The Feeling of What Happens: Body and Emotion and the Making of Consciousness (Random House, 2000), 28.
18. B. A. van der Kolk, “Clinical Implications of Neuroscience Research in PTSD,” Annals of the
New York Academy of Sciences 1071, no. 1 (2006): 277–93. See also B. K. Hölzel, et al., “How
Does Mindfulness Meditation Work? Proposing Mechanisms of Action from a Conceptual and
Neural Perspective,” Perspectives on Psychological Science 6, no. 6 (2011): 537–59.
19. B. K. Hölzel, et al., “Mindfulness Practice Leads to Increases in Regional Brain Gray

Matter
Density," Psychiatry Research: Neuroimaging 191, no. 1 (2011): 36–43. See also B. K. Hölzel,
et al., "Stress Reduction Correlates with Structural Changes in the Amygdala," Social Cognitive
and Affective Neuroscience 5, no. 1 (2010): 11–17; and S. W. Lazar, et al., "Meditation
Experience Is Associated with Increased Cortical Thickness," NeuroReport 16 (2005): 1893–97.



CHAPTER 17: PUTTING THE PIECES TOGETHER: SELF-LEADERSHIP

1. R. A. Goulding and R. C. Schwartz, The Mosaic Mind: Empowering the Tormented Selves of
Child Abuse Survivors (New York: Norton, 1995), 4.

2. J. G. Watkins and H. H. Watkins, Ego States (New York: Norton, 1997). Jung calls personality
parts archetypes and complexes; cognitive psychology schemes and the DID literature refers to
them as alters. See also J. G. Watkins and H. H. Watkins, "Theory and Practice of Ego State
Therapy: A Short-Term Therapeutic Approach," Short-Term Approaches to Psychotherapy 3
(1979): 176–220; J. G. Watkins and H. H. Watkins, "Ego States and Hidden Observers," Journal
of Altered States of Consciousness 5, no. 1 (1979): 3–18; and C. G. Jung, Lectures: Psychology
and Religion (New Haven CT: Yale University Press, 1960).

3. W. James, The Principles of Psychology (New York: Holt, 1890), 206.

4. C. Jung, Collected Works, vol. 9, The Archetypes and the Collective Unconscious (Princeton,
NJ: Princeton University Press, 1955/1968), 330.

5. C. Jung, Collected Works, vol. 10, Civilization in Transition (Princeton, NJ: Princeton

University Press, 1957/1964), 540.

6. Ibid., 133.

7. M. S. Gazzaniga, The Social Brain: Discovering the Networks of the Mind (New York: Basic

Books, 1985), 90.

8. Ibid., 356.

9. M, Minsky, The Society of Mind (New York: Simon & Schuster, 1988), 51.

10. Goulding and Schwartz, Mosaic Mind, p. 290.

11. O. van der Hart, E. R. Nijenhuis, and K. Steele, The Haunted Self: Structural Dissociation and

the Treatment of Chronic Traumatization (New York: WW Norton, 2006); R. P. Kluft, Shelter

from the Storm (self-published, 2013).

12. R. Schwartz, Internal Family Systems Therapy (New York: Guilford Press, 1995).

13. Ibid., p. 34.

14. Ibid., p. 19.

15. Goulding and Schwartz, Mosaic Mind, 63.

16. J. G. Watkins, 1997, illustrates this as an example of personifying depression: “We need to

know what the imaginal sense of the depression is and who, which character, suffers it.”

17. Richard Schwartz, personal communication.

18. Goulding and Schwartz, Mosaic Mind, 33.

19. A. W. Evers, et al., “Tailored Cognitive-Behavioral Therapy in Early Rheumatoid Arthritis for

Patients at Risk: A Randomized Controlled Trial,” Pain 100, no. 1–2 (2002): 141–53; E. K.

Pradhan, et al., “Effect of Mindfulness-Based Stress Reduction in Rheumatoid Arthritis Patients,” Arthritis & Rheumatology 57, no. 7 (2007): p. 1134–42; J. M. Smyth, et al., “Effects

of Writing About Stressful Experiences on Symptom Reduction in Patients with Asthma or
Rheumatoid Arthritis: A Randomized Trial," JAMA 281, no. 14 (1999): 1304–9; L. Sharpe, et
al., "Long-Term Efficacy of a Cognitive Behavioural Treatment from a Randomized Controlled
Trial for Patients Recently Diagnosed with Rheumatoid Arthritis," Rheumatology (Oxford) 42,
no. 3 (2003): 435–41; H. A. Zangi, et al., "A Mindfulness-Based Group Intervention to Reduce
Psychological Distress and Fatigue in Patients with Inflammatory Rheumatic Joint Diseases: A
Randomised Controlled Trial," Annals of the Rheumatic Diseases 71, no. 6 (2012): 911–17.

CHAPTER 18: FILLING IN THE HOLES: CREATING STRUCTURES

1. Pesso Boyden System Psychomotor. See http://pbsp.com/.

2. D. Goleman, Social Intelligence: The New Science of Human Relationships (Random House
Digital, 2006).

3. A. Pesso, "PBSP: Pesso Boyden System Psychomotor," in Getting in Touch: A Guide to Body-
Centered Therapies, ed. S. Caldwell (Wheaton, IL: Theosophical Publishing House, 1997); A.
Pesso, Movement in Psychotherapy: Psychomotor Techniques and Training (New York: New
York University Press, 1969); A. Pesso, Experience in Action: A Psychomotor Psychology (New
York: New York University Press, 1973); A. Pesso and J. Crandell, eds., Moving Psychotherapy:
Theory and Application of Pesso System/Psychomotor (Cambridge, MA: Brookline

Books,
1991); M. Scarf, Secrets, Lies, and Betrayals (New York: Ballantine Books, 2005); M. van
Attekum, Aan Den Lijve (Netherlands: Pearson Assessment, 2009); and A. Pesso, “The Externalized Realization of the Unconscious and the Corrective Experience,” in Handbook of
Body-Psychotherapy / Handbuch der Körperpsychotherapie, ed. H. Weiss and G. Marlock
(Stuttgart,Germany: Schattauer, 2006).
4. Luiz Pessoa, and Ralph Adolphs, “Emotion Processing and the Amygdala: from a ‘Low Road’
to ‘Many Roads’ of Evaluating Biological Significance.” Nature Reviews Neuroscience 11, no.
11 (2010): 773–83.

CHAPTER 19: REWIRING THE BRAIN: NEUROFEEDBACK

1. H. H. Jasper, P. Solomon, and C. Bradley, “Electroencephalographic Analyses of Behavior
Problem Children,” American Journal of Psychiatry 95 (1938): 641–58; P. Solomon, H. H.
Jasper, and C. Braley, “Studies in Behavior Problem Children,” American Neurology and Psychiatry 38 (1937): 1350–51.
2. Martin Teicher at Harvard Medical School, has done extensive research that documents
temporal lobe abnormalities in adults who were abused as children: M. H. Teicher et al., “The
Neurobiological Consequences of Early Stress and Childhood Maltreatment,” Neuroscience &
Biobehavioral Reviews 27, no. 1–2) (2003): 33–44; M. H. Teicher et al., “Early Childhood
Abuse and Limbic System Ratings in Adult Psychiatric Outpatients,” Journal of

Neuropsychiatry & Clinical Neurosciences 5, no. 3 (1993): 301–6; M. H. Teicher, et al., “Sticks,
Stones and Hurtful Words: Combined Effects of Childhood Maltreatment Matter Most,” American Journal of Psychiatry (2012).

3. Sebern F. Fisher, Neurofeedback in the Treatment of Developmental Trauma: Calming the Fear-
Driven Brain. (New York: Norton, 2014).

4. J. N. Demos, Getting Started with Neurofeedback (New York: WW Norton, 2005). See also R. J.
Davidson, “Affective Style and Affective Disorders: Prospectives from Affective Neuroscience,” Cognition and Emotion 12, no. 3 (1998): 307–30; and R. J. Davidson, et al.,
“Regional Brain Function, Emotion and Disorders of Emotion,” Current Opinion in Neurobiology 9 (1999): 228–34.

5. J. Kamiya, “Conscious Control of Brain Waves,” Psychology Today, April 1968, 56–60. See
also D. P. Nowlis, and J. Kamiya, “The Control of Electroencephalographic Alpha Rhythms
Through Auditory Feedback and the Associated Mental Activity,” Psychophysiology 6, no. 4
(1970): 476–84 and D. Lantz and M. B. Sterman, “Neuropsychological Assessment of Subjects
with Uncontrolled Epilepsy: Effects of EEG Feedback Training,” Epilepsia 29, no. 2 (1988):
163–71.

6. M. B. Sterman, L. R. Macdonald, and R. K. Stone, “Biofeedback Training of the Sensorimotor
Electroencephalogram Rhythm in Man: Effects on Epilepsy,” Epilepsia 15, no. 3 (1974): 395–
416. A recent meta-analysis of eighty-seven studies showed that neurofeedback led to

a
significant reduction in seizure frequency in approximately 80 percent of epileptics who
received the training. Gabriel Tan, et al., “Meta-Analysis of EEG Biofeedback in Treating
Epilepsy,” Clinical EEG and Neuroscience 40, no. 3 (2009): 173–79.
7. This is part of the same circuit of self-awareness that I described in chapter 5. Alvaro Pascual-
Leone has shown how, when one temporarily knocks out the area above the medial prefrontal
cortex with transcranial magnetic stimulation (TMS), people can temporarily not identify whom
they are looking at when they stare into the mirror. J. Pascual-Leone, “Mental Attention,
Consciousness, and the Progressive Emergence of Wisdom,” Journal of Adult Development 7,
no. 4 (2000): 241–54.
8. http://www.eegspectrum.com/intro-to-neurofeedback/.
9. S. Rauch, et al., “Symptom Provocation Study Using Positron Emission Tomography and Script
Driven Imagery,” Archives of General Psychiatry 53 (1996): 380–87. Three other studies using
a new way of imaging the brain, magnetoencephalography (MEG), showed that people with
PTSD suffer from increased activation of the right temporal cortex: C. Catani, et al., “Pattern of
Cortical Activation During Processing of Aversive Stimuli in Traumatized Survivors of War and
Torture,” European Archives of Psychiatry and Clinical Neuroscience 259, no. 6 (2009): 340–

51; B. E. Engdahl, et al., “Post-traumatic Stress Disorder: A Right Temporal Lobe Syndrome?”
Journal of Neural Engineering 7, no. 6 (2010): 066005; A. P. Georgopoulos, et al., “The Synchronous Neural Interactions Test as a Functional Neuromarker for Post-traumatic Stress
Disorder (PTSD): A Robust Classification Method Based on the Bootstrap,” Journal of Neural
Engineering 7. no. 1 (2010): 016011.
10. As measured on the Clinician Administered PTSD Scale (CAPS).
11. As measured by John Briere’s Inventory of Altered Self-Capacities (IASC).
12. Posterior and central alpha rhythms are generated by thalamocortical networks; beta rhythms
appear to be generated by local cortical networks; and the frontal midline theta rhythm (the only
healthy theta rhythm in the human brain) is hypothetically generated by the septohippocampal
neuronal network. For a recent review see J. Kropotov, Quantitative EEG, ERP’s And Neurotherapy (Amsterdam: Elsevier, 2009).
13. H. Benson, “The Relaxation Response: Its Subjective and Objective Historical Precedents and
Physiology,” Trends in Neurosciences 6 (1983): 281–84.
14. Tobias Egner and John H. Gruzelier, “Ecological Validity of Neurofeedback: Modulation of
Slow Wave EEG Enhances Musical Performance,” Neuroreport 14 no. 9 (2003): 1221–4; David
J. Vernon, “Can Neurofeedback Training Enhance Performance? An Evaluation of the Evidence
with Implications for Future Research,” Applied Psychophysiology and Biofeedback 30, no. 4
(2005): 347–64.

15. “Vancouver Canucks Race to the Stanley Cup—Is It All in Their Minds?” Bio-Medical.com,
June 2, 2011, http://bio-medical.com/news/2011/06/vancouver-canucks-race-to-the-stanley-cup-
is-it-all-in-their-minds/.
16. M. Beauregard, Brain Wars (New York: Harper Collins, 2013), p. 33.
17. J. Gruzelier, T. Egner, and D. Vernon, “Validating the Efficacy of Neurofeedback for Optimising Performance,” Progress in Brain Research 159 (2006): 421–31. See also D. Vernon
and J. Gruzelier, “Electroencephalographic Biofeedback as a Mechanism to Alter Mood, Creativity and Artistic Performance,” in Mind-Body and Relaxation Research Focus, ed. B. N.
De Luca (New York: Nova Science, 2008), 149–64.
18. See, e.g., M. Arns, et al., “Efficacy of Neurofeedback Treatment in ADHD: The Effects on
Inattention, Impulsivity and Hyperactivity: A Meta-Analysis,” Clinical EEG and Neuroscience
40, no. 3 (2009): 180–89; T. Rossiter, “The Effectiveness of Neurofeedback and Stimulant
Drugs in Treating AD/HD: Part I: Review of Methodological Issues,” Applied Psychophysiology
and Biofeedback 29, no. 2 (June 2004): 95–112; T. Rossiter, “The Effectiveness of Neurofeedback and Stimulant Drugs in Treating AD/HD: Part II: Replication,” Applied Psychophysiology and Biofeedback 29, no. 4 (2004): 233–43; and L. M. Hirshberg, S. Chiu, and
J. A. Frazier, “Emerging Brain-Based Interventions for Children and Adolescents: Overview and
Clinical Perspective,” Child and Adolescent Psychiatric Clinics of North America 14, no. 1
(2005): 1–19.

19. For more on qEEG, see http://thebrainlabs.com/qeeg.shtml.

20. N. N. Boutros, M. Torello, and T. H. McGlashan, “Electrophysiological Aberrations in Borderline Personality Disorder: State of the Evidence,” Journal of Neuropsychiatry and Clinical Neurosciences 15 (2003): 145–54.

21. In chapter 17, we saw how essential it is to cultivate a state of steady, calm self-observation,
which IFS calls a state of “being in self.” Dick Schwartz claims that with persistence anybody
can achieve such a state, and indeed, I have seen him help very traumatized people do precisely
that. I am not that skilled, and many of my most severely traumatized patients become frantic or
spaced out when we approach upsetting subjects. Others feel so chronically out of control that it
is difficult to find any abiding sense of “self.” In most psychiatric settings people with these
problems are given medications to stabilize them. Sometimes that works, but many patients lose
their motivation and drive. In our randomized controlled study of neurofeedback, chronically
traumatized patients had an approximately 30 percent reduction in PTSD symptoms and a
significant improvement in measures of executive function and emotional control (van der Kolk
et al., submitted 2014).

22. Traumatized kids with sensory-integration deficits need programs specifically developed for
their needs. At present, the leaders of this effort are my Trauma Center colleague Elizabeth
Warner and Adele Diamond at the University of British Columbia.

23. R. J. Castillo, “Culture, Trance, and the Mind-Brain,” Anthropology of Consciousness 6, no. 1
(March 1995): 17–34. See also B. Inglis, Trance: A Natural History of Altered States of Mind
(London: Paladin, 1990); N. F. Graffin, W. J. Ray, and R. Lundy, “EEG Concomitants of Hypnosis and Hypnotic Susceptibility,” Journal of Abnormal Psychology 104, no. 1 (1995):
123–31; D. L. Schacter, “EEG Theta Waves and Psychological Phenomena: A Review and
Analysis,” Biological Psychology 5, no. 1 (1977): 47–82; and M. E. Sabourin, et al., “EEG Correlates of Hypnotic Susceptibility and Hypnotic Trance: Spectral Analysis and Coherence,”
International Journal of Psychophysiology 10, no. 2 (1990): 125–42.
24. E. G. Peniston and P. J. Kulkosky, “Alpha-Theta Brainwave Neuro-Feedback Therapy for
Vietnam Veterans with Combat-Related Post-traumatic Stress Disorder,” Medical Psychotherapy 4 (1991): 47–60.
25. T. M. Sokhadze, R. L. Cannon, and D. L. Trudeau, “EEG Biofeedback as a Treatment for
Substance Use Disorders: Review, Rating of Efficacy and Recommendations for Further Research,” Journal of Neurotherapy 12, no. 1 (2008): 5–43.
26. R. C. Kessler, “Posttraumatic Stress Disorder: The Burden to the Individual and to Society,”
Journal of Clinical Psychiatry 61, suppl. 5 (2000): 4–14. See also R. Acierno, et al., “Risk Factors for Rape, Physical Assault, and Posttraumatic Stress Disorder in Women: Examination
of Differential Multivariate Relationships,” Journal of Anxiety Disorders 13, no. 6 (1999): 541–
63; and H. D. Chilcoat and N. Breslau, “Investigations of Causal Pathways Between PTSD and

Drug Use Disorders," Addictive Behaviors 23, no. 6 (1998): 827–40.

27. S. L. Fahrion et al., "Alterations in EEG Amplitude, Personality Factors, and Brain Electrical Mapping After Alpha-Theta Brainwave Training: A Controlled Case Study of an Alcoholic in Recovery," Alcoholism: Clinical and Experimental Research 16, no. 3 (June 1992): 547–52; R. J. Goldberg, J. C. Greenwood, and Z. Taintor, "Alpha Conditioning as an Adjunct Treatment for Drug Dependence: Part 1," International Journal of Addiction 11, no. 6 (1976): 1085–89; R. F. Kaplan, et al., "Power and Coherence Analysis of the EEG in Hospitalized Alcoholics and Nonalcoholic Controls," Journal of Studies on Alcohol 46 (1985): 122–27; Y. Lamontagne et al., "Alpha and EMG Feedback Training in the Prevention of Drug Abuse: A Controlled Study," Canadian Psychiatric Association Journal 22, no. 6 (October 1977): 301–10; Saxby and E. G. Peniston, "Alpha-Theta Brainwave Neurofeedback Training: An Effective Treatment for Male and Female Alcoholics with Depressive Symptoms," Journal of Clinical Psychology 51, no. 5 (1995): 685–93; W. C. Scott, et al., "Effects of an EEG Biofeedback Protocol on a Mixed Substance Abusing Population," American Journal Drug and Alcohol Abuse 31, no. 3 (2005): 455–69; and D. L. Trudeau, "Applicability of Brain Wave Biofeedback to Substance Use Disorder in Adolescents," Child & Adolescent Psychiatric Clinics of North America 14, no. 1 (January 2005): 125–36.

28. E. G. Peniston, “EMG Biofeedback-Assisted Desensitization Treatment for Vietnam Combat
Veterans Post-traumatic Stress Disorder,” Clinical Biofeedback and Health 9 (1986): 35–41.
29. Eugene G. Peniston, and Paul J. Kulkosky. “Alpha-Theta Brainwave Neurofeedback for
Vietnam Veterans with Combat-Related Post-Traumatic Stress Disorder.” Medical Psychotherapy 4, no. 1 (1991): 47-60.
30. Similar results were reported by another group seven years later: W. C. Scott, et al., “Effects of
an EEG Biofeedback Protocol on a Mixed Substance Abusing Population,” American Journal of
Drug and Alcohol Abuse 31, no. 3 (2005): 455–69.
31. D. L. Trudeau, T. M. Sokhadze, and R. L. Cannon, “Neurofeedback in Alcohol and Drug
Dependency,” in Introduction to Quantitative EEG and Neurofeedback: Advanced Theory and
Applications, ed. T. Budzynski, et al. Amsterdam, Elsevier, (1999) pp. 241–68; F. D. Arani, R.
Rostami, and M. Nostratabadi, “Effectiveness of Neurofeedback Training as a Treatment for
Opioid-Dependent Patients,” Clinical EEG and Neuroscience 41, no. 3 (2010): 170–77; F.
Dehghani-Arani, R. Rostami, and H. Nadali, “Neurofeedback Training for Opiate Addiction:
Improvement of Mental Health and Craving,” Applied Psychophysiology and Biofeedback, 38,
no. 2 (2013): 133–41; J. Luigjes, et al., “Neuromodulation as an Intervention for Addiction:
Overview and Future Prospects,” Tijdschrift voor psychiatrie 55, no. 11 (2012): 841–52.

32. S. Othmer, “Remediating PTSD with Neurofeedback,” October 11, 2011, http://hannokirk.com/files/Remediating-PTSD_10-01-11.pdf.
33. F. H. Duffy, “The State of EEG Biofeedback Therapy (EEG Operant Conditioning) in 2000:
An Editor’s Opinion,” an editorial in Clinical Electroencephalography 31, no. 1 (2000): v–viii.
34. Thomas R. Insel, “Faulty Circuits,” Scientific American 302, no. 4 (2010): 44-51.
35. T. Insel, “Transforming Diagnosis,” National Insitute of Mental Health, Director’s Blog, April
29, 2013, http://www.nimh.nih.gov/about/director/2013/transforming-diagnosis.shtml.
36. Joshua W. Buckholtz and Andreas Meyer-Lindenberg, “Psychopathology and the Human
Connectome: Toward a Transdiagnostic Model of Risk For Mental Illness,” Neuron 74, no. 4
(2012): 990–1004.
37. F. Collins, “The Symphony Inside Your Brain,” NIH Director’s Blog, November 5, 2012,
http://directorsblog.nih.gov/2012/11/05/the-symphony-inside-your-brain/.
CHAPTER 20: FINDING YOUR VOICE: COMMUNAL RHYTHMS AND THEATER
1. F. Butterfield, “David Mamet Lends a Hand to Homeless Vietnam Veterans,” New York Times,
October 10, 1998. For more on the new shelter, see
http://www.nechv.org/historyatnechv.html.
2. P. Healy, “The Anguish of War for Today’s Soldiers, Explored by Sophocles,” New York Times,
November 11, 2009. For more on Doerries’s project, see
http://www.outsidethewirellc.com/projects/theater-of-war/overview.
3. Sara Krulwich, “The Theater of War,” New York Times, November 11, 2009.
4. W. H. McNeill, Keeping Together in Time: Dance and Drill in Human History (Cambridge,

MA: Harvard University Press, 1997).

5. Plutarch, Lives, vol. 1 (Digireads.com, 2009), 58.

6. M. Z. Seitz, “The Singing Revolution,” New York Times, December 14, 2007.

7. For more on Urban Improv, see http://www.urbanimprov.org/.

8. The Trauma Center Web site, offers a full-scale downloadable curriculum for a fourth-grade

Urban Improv program that can be run by teachers nationwide.

http://www.traumacenter.org/initiatives/psychosocial.php.

9. For more on the Possibility Project, see http://the-possibility-project.org/.

10. For more on Shakespeare in the Courts, see

http://www.shakespeare.org/education/for-youth/shakespeare-courts/.

11. C. Kisiel, et al., “Evaluation of a Theater-Based Youth Violence Prevention Program for

Elementary School Children,” Journal of School Violence 5, no. 2 (2006): 19–36.

12. The Urban Improv and Trauma Center leaders were Amie Alley, PhD, Margaret Blaustein,

PhD, Toby Dewey, MA, Ron Jones, Merle Perkins, Kevin Smith, Faith Soloway, Joseph Spinazzola, PhD.

13. H. Epstein and T. Packer, The Shakespeare & Company Actor Training Experience (Lenox

MA, Plunkett Lake Press, 2007); H. Epstein, Tina Packer Builds a Theater (Lenox, MA:

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