

# THE BODY KEEPS THE SCORE

BRAIN, MIND, AND BODY  
IN THE HEALING OF TRAUMA



BESSEL VAN DER KOLK, MD

## Praise for *The Body Keeps the Score*

“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*

“Bessel van der Kolk is unequalled 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 ground breaking 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*

“When it comes to understanding the impact of trauma and being able to continue to grow despite overwhelming life experiences, Bessel van der Kolk leads the way in his comprehensive knowledge, clinical courage, and creative strategies to help us heal. *The Body Keeps the Score* is a cutting-edge offering for the general reader to comprehend the complex effects of trauma, and a guide to a wide array of scientifically informed approaches to not only reduce suffering, but to move beyond mere survival— and to thrive.”

—Daniel J. Siegel, MD, clinical professor, UCLA School of Medicine, author of *Brainstorm: The Power and Purpose of the Teenage Brain*; *Mindsight: The New Science of Personal Transformation*; and *The Developing Mind: How Relationships and the Brain Interact to Shape Who We Are*

“In this magnificent book, Bessel van der Kolk takes the reader on a captivating journey that is chock-full of riveting stories of patients and their struggles interpreted through history, research, and neuroscience made accessible in the words of a gifted storyteller. We are privy to the author’s own courageous efforts to understand and treat trauma over the past forty years, the results of which have broken new ground and challenged the status quo of psychiatry and psychotherapy. *The Body Keeps the Score* leaves us with both a profound appreciation for and a felt sense of the debilitating effects of trauma, along with hope for the future through fascinating descriptions of novel approaches to treatment. This outstanding volume is absolutely essential reading not only for therapists but for all who seek to understand, prevent, or treat the immense suffering caused by trauma.”

—Pat Ogden PhD, founder/educational director of the Sensorimotor Psychotherapy Institute; author of *Sensorimotor Psychotherapy: Interventions for Trauma and Attachment*

“This is masterpiece of powerful understanding and brave heartedness, one of the most intelligent and helpful works on trauma I have ever read. Dr. Van der Kolk offer a brilliant synthesis of clinical cases, neuroscience, powerful tools and caring humanity, offering a whole new level of healing for the traumas carried by so many.”

—Jack Kornfield, author of *A Path with Heart*

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**Bessel A. van der Kolk, M.D.**

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*To my patients, who kept the score and were the textbook.*

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# PROLOGUE

## FACING TRAUMA

One does not have to be a combat soldier, or visit a refugee camp in Syria or the Congo to encounter trauma. Trauma happens to us, our friends, our families, and our neighbors. Research by the Centers for Disease Control and Prevention has shown that one in five Americans was sexually molested as a child; one in four was beaten by a parent to the point of a mark being left on their body; and one in three couples engages in physical violence. A quarter of us grew up with alcoholic relatives, and one out of eight witnessed their mother being beaten or hit.<sup>1</sup>

As human beings we belong to an extremely resilient species. Since time immemorial we have rebounded from our relentless wars, countless disasters (both natural and man-made), and the violence and betrayal in our own lives. But traumatic experiences do leave traces, whether on a large scale (on our histories and cultures) or close to home, on our families, with dark secrets being imperceptibly passed down through generations. They also leave traces on our minds and emotions, on our capacity for joy and intimacy, and even on our biology and immune systems.

Trauma affects not only those who are directly exposed to it, but also those around them. Soldiers returning home from combat may frighten their families with their rages and emotional absence. The wives of men who suffer from PTSD tend to become depressed, and the children of depressed mothers are at risk of growing up insecure and anxious. Having been exposed to family violence as a child often makes it difficult to establish stable, trusting relationships as an adult.

Trauma, by definition, is unbearable and intolerable. Most rape victims, combat soldiers, and children who have been molested become so upset when they think about what they experienced that they try to push it

out of their minds, trying to act as if nothing happened, and move on. It takes tremendous energy to keep functioning while carrying the memory of terror, and the shame of utter weakness and vulnerability.

While we all want to move beyond trauma, the part of our brain that is devoted to ensuring our survival (deep below our rational brain) is not very good at denial. Long after a traumatic experience is over, it may be reactivated at the slightest hint of danger and mobilize disturbed brain circuits and secrete massive amounts of stress hormones. This precipitates unpleasant emotions intense physical sensations, and impulsive and aggressive actions. These posttraumatic reactions feel incomprehensible and overwhelming. Feeling out of control, survivors of trauma often begin to fear that they are damaged to the core and beyond redemption.

• • •

The first time I remember being drawn to study medicine was at a summer camp when I was about fourteen years old. My cousin Michael kept me up all night explaining the intricacies of how kidneys work, how they secrete the body's waste materials and then reabsorb the chemicals that keep the system in balance. I was riveted by his account of the miraculous way the body functions. Later, during every stage of my medical training, whether I was studying surgery, cardiology, or pediatrics, it was obvious to me that the key to healing was understanding how the human organism works. When I began my psychiatry rotation, however, I was struck by the contrast between the incredible complexity of the mind and the ways that we human beings are connected and attached to one another, and how little psychiatrists knew about the origins of the problems they were treating. Would it be possible one day to know as much about brains, minds, and love as we do about the other systems that make up our organism?

We are obviously still years from attaining that sort of detailed understanding, but the birth of three new branches of science has led to an explosion of knowledge about the effects of psychological trauma, abuse, and neglect. Those new disciplines are neuroscience, the study of how the brain supports mental processes; developmental psychopathology, the study of the impact of adverse experiences on the development of mind and brain; and interpersonal neurobiology, the study of how our behavior influences the emotions, biology, and mind-sets of those around us.

Research from these new disciplines has revealed that trauma

produces actual physiological changes, including a recalibration of the brain's alarm system, an increase in stress hormone activity, and alterations in the system that filters relevant information from irrelevant. We now know that trauma compromises the brain area that communicates the physical, embodied feeling of being alive. These changes explain why traumatized individuals become hypervigilant to threat at the expense of spontaneously engaging in their day-to-day lives. They also help us understand why traumatized people so often keep repeating the same problems and have such trouble learning from experience. We now know that their behaviors are not the result of moral failings or signs of lack of willpower or bad character—they are caused by actual changes in the brain.

This vast increase in our knowledge about the basic processes that underlie trauma has also opened up new possibilities to palliate or even reverse the damage. We can now develop methods and experiences that utilize the brain's own natural neuroplasticity to help survivors feel fully alive in the present and move on with their lives. There are fundamentally three avenues: 1) top down, by talking, (re-) connecting with others, and allowing ourselves to know and understand what is going on with us, while processing the memories of the trauma; 2) by taking medicines that shut down inappropriate alarm reactions, or by utilizing other technologies that change the way the brain organizes information, and 3) bottom up: by allowing the body to have experiences that deeply and viscerally contradict the helplessness, rage, or collapse that result from trauma. Which one of these is best for any particular survivor is an empirical question. Most people I have worked with require a combination.

This has been my life's work. In this effort I have been supported by my colleagues and students at the Trauma Center, which I founded thirty years ago. Together we have treated thousands of traumatized children and adults: victims of child abuse, natural disasters, wars, accidents, and human trafficking; people who have suffered assaults by intimates and strangers. We have a long tradition of discussing all our patients in great depth at weekly treatment team meetings and carefully tracking how well different forms of treatment work for particular individuals.

Our principal mission has always been to take care of the children and adults who have come to us for treatment, but from the very beginning we also have dedicated ourselves to conducting research to explore the effects of traumatic stress on different populations and to determine what

treatments work for whom. We have been supported by research grants from the National Institute of Mental Health, the National Center for Complementary and Alternative Medicine, the Centers for Disease Control, and a number of private foundations to study the efficacy of many different forms of treatment, from medications to talking, yoga, EMDR, theater, and neurofeedback.

The challenge is: How can people gain control over the residues of past trauma and return to being masters of their own ship? Talking, understanding, and human connections help, and drugs can dampen hyperactive alarm systems. But we will also see that the imprints from the past can be transformed by having physical experiences that directly contradict the helplessness, rage, and collapse that are part of trauma, and thereby regaining self-mastery. I have no preferred treatment modality, as no single approach fits everybody, but I practice all the forms of treatment that I discuss in this book. Each one of them can produce profound changes, depending on the nature of the particular problem and the makeup of the individual person.

I wrote this book to serve as both a guide and an invitation—an invitation to dedicate ourselves to facing the reality of trauma, to explore how best to treat it, and to commit ourselves, as a society, to using every means we have to prevent it.

PART ONE

**THE REDISCOVERY  
OF TRAUMA**



# CHAPTER 1

## LESSONS FROM VIETNAM VETERANS

I became what I am today at the age of twelve, on a frigid overcast day in the winter of 1975. . . . That was a long time ago, but it's wrong what they say about the past. . . . Looking back now, I realize I have been peeking into that deserted alley for the last twenty-six years.

—Khaled Hosseini, *The Kite Runner*

Some people's lives seem to flow in a narrative; mine had many stops and starts. That's what trauma does. It interrupts the plot. . . . It just happens, and then life goes on. No one prepares you for it.

—Jessica Stern, *Denial: A Memoir of Terror*

The Tuesday after the Fourth of July weekend, 1978, was my first day as a staff psychiatrist at the Boston Veterans Administration Clinic. As I was hanging a reproduction of my favorite Breughel painting, “The Blind Leading the Blind,” on the wall of my new office, I heard a commotion in the reception area down the hall. A moment later a large, disheveled man in a stained three-piece suit, carrying a copy of *Soldier of Fortune* magazine under his arm, burst through my door. He was so agitated and so clearly hungover that I wondered how I could possibly help this hulking man. I asked him to take a seat, and tell me what I could do for him.

His name was Tom. Ten years earlier he had been in the Marines, doing his service in Vietnam. He had spent the holiday weekend holed up in his downtown-Boston law office, drinking and looking at old photographs, rather than with his family. He knew from previous years' experience that the noise, the fireworks, the heat, and the picnic in his sister's backyard against the backdrop of dense early-summer foliage, all of which reminded him of Vietnam, would drive him crazy. When he got upset he was afraid to be around his family because he behaved like a monster with his wife and two young boys. The noise of his kids made him so agitated that he would storm out of the house to keep himself from hurting them. Only drinking himself into oblivion or riding his Harley-Davidson at dangerously high speeds helped him to calm down.

Nighttime offered no relief—his sleep was constantly interrupted by nightmares about an ambush in a rice paddy back in 'Nam, in which all the members of his platoon were killed or wounded. He also had terrifying flashbacks in which he saw dead Vietnamese children. The nightmares were so horrible that he dreaded falling asleep and he often stayed up for most of the night, drinking. In the morning his wife would find him passed out on the living room couch, and she and the boys had to tiptoe around him while she made them breakfast before taking them to school.

Filling me in on his background, Tom said that he had graduated from high school in 1965, the valedictorian of his class. In line with his family tradition of military service he enlisted in the Marine Corps immediately after graduation. His father had served in World War II in General Patton's army, and Tom never questioned his father's expectations. Athletic, intelligent, and an obvious leader, Tom felt powerful and effective after finishing basic training, a member of a team that was prepared for just about anything. In Vietnam he quickly became a platoon leader, in charge of eight other Marines. Surviving slogging through the mud while being strafed by machine-gun fire can leave people feeling pretty good about themselves—and their comrades.

At the end of his tour of duty Tom was honorably discharged, and all he wanted was to put Vietnam behind him. Outwardly that's exactly what he did. He attended college on the GI Bill, graduated from law school, married his high school sweetheart, and had two sons. Tom was upset by how difficult it was to feel any real affection for his wife, even though her letters had kept him alive in the madness of the jungle. Tom went through the motions of living a normal life, hoping that by faking it he would learn

to become his old self again. He now had a thriving law practice and a picture-perfect family, but he sensed he wasn't normal; he felt dead inside.

Although Tom was the first veteran I had ever encountered on a professional basis, many aspects of his story were familiar to me. I grew up in postwar Holland, playing in bombed-out buildings, the son of a man who had been such an outspoken opponent of the Nazis that he had been sent to an internment camp. My father never talked about his war experiences, but he was given to outbursts of explosive rage that stunned me as a little boy. How could the man I heard quietly going down the stairs every morning to pray and read the Bible while the rest of the family slept have such a terrifying temper? How could someone whose life was devoted to the pursuit of social justice be so filled with anger? I witnessed the same puzzling behavior in my uncle, who had been captured by the Japanese in the Dutch East Indies (now Indonesia) and sent as a slave laborer to Burma, where he worked on the famous bridge over the river Kwai. He also rarely mentioned the war, and he, too, often erupted into uncontrollable rages.

As I listened to Tom, I wondered if my uncle and my father had had nightmares and flashbacks—if they, too, had felt disconnected from their loved ones and unable to find any real pleasure in their lives. Somewhere in the back of my mind there must also have been my memories of my frightened—and often frightening—mother, whose own childhood trauma was sometimes alluded to and, I now believe, was frequently reenacted. She had the unnerving habit of fainting when I asked her what her life was like as a little girl and then blaming me for making her so upset.

Reassured by my obvious interest, Tom settled down to tell me just how scared and confused he was. He was afraid that he was becoming just like his father, who was always angry and rarely talked with his children—except to compare them unfavorably with his comrades who had lost their lives around Christmas 1944, during the Battle of the Bulge.

As the session was drawing to a close, I did what doctors typically do: I focused on the one part of Tom's story that I thought I understood—his nightmares. As a medical student I had worked in a sleep laboratory, observing people's sleep/dream cycles, and had assisted in writing some articles about nightmares. I had also participated in some early research on the beneficial effects of the psychoactive drugs that were just coming into use in the 1970s. So, while I lacked a true grasp of the scope of Tom's problems, the nightmares were something I could relate to, and as an

enthusiastic believer in better living through chemistry, I prescribed a drug that we had found to be effective in reducing the incidence and severity of nightmares. I scheduled Tom for a follow-up visit two weeks later.

When he returned for his appointment, I eagerly asked Tom how the medicines had worked. He told me he hadn't taken any of the pills. Trying to conceal my irritation, I asked him why. "I realized that if I take the pills and the nightmares go away," he replied, "I will have abandoned my friends, and their deaths will have been in vain. I need to be a living memorial to my friends who died in Vietnam."

I was stunned: Tom's loyalty to the dead was keeping him from living his own life, just as his father's devotion to his friends had kept him from living. Both father's and son's experiences on the battlefield had rendered the rest of their lives irrelevant. How had that happened, and what could we do about it? That morning I realized I would probably spend the rest of my professional life trying to unravel the mysteries of trauma. How do horrific experiences cause people to become hopelessly stuck in the past? What happens in people's minds and brains that keeps them frozen, trapped in a place they desperately wish to escape? Why did this man's war not come to an end in February 1969, when his parents embraced him at Boston's Logan International Airport after his long flight back from Da Nang?

Tom's need to live out his life as a memorial to his comrades taught me that he was suffering from a condition much more complex than simply having bad memories or damaged brain chemistry—or altered fear circuits in the brain. Before the ambush in the rice paddy, Tom had been a devoted and loyal friend, someone who enjoyed life, with many interests and pleasures. In one terrifying moment, trauma had transformed everything.

During my time at the VA I got to know many men who responded similarly. Faced with even minor frustrations, our veterans often flew instantly into extreme rages. The public areas of the clinic were pockmarked with the impacts of their fists on the drywall, and security was kept constantly busy protecting claims agents and receptionists from enraged veterans. Of course, their behavior scared us, but I also was intrigued.

At home my wife and I were coping with similar problems in our toddlers, who regularly threw temper tantrums when told to eat their spinach or to put on warm socks. Why was it, then, that I was utterly