

BRAIN, MIND, AND BODY IN THE HEALING OF TRAUMA



Dr. David Van Nuys Interviews Bessel van der Kolk, MD

I am speaking with noted psychiatrist Bessel van der Kolk, whose innovative work to integrate mind, brain, body, and social connections in the healing of trauma has had a profound impact on the care and treatment of trauma victims all over the world. We'll be discussing his new book, *The Body Keeps the Score*. For more information about Dr. van der Kolk, please see our show notes on ShrinkRapRadio.com.

Dr. Dave

Dr. Dave: Dr. Bessel van der Kolk—welcome to Shrink Rap Radio.

Dr. van der Kolk: Hi. Good afternoon.

Dr. Dave: Good afternoon to you. I am thrilled to have you on the show and I am looking forward to speaking with you about your new book, *The Body Keeps the Score*. I think we have something in common, in as much as you developed many of your ideas drawing upon your experiences working with veterans in the VA after the Vietnam War. As it happens, I did internships at two different VA hospitals in Michigan during the mid-1960s and so had some experience with the same population that you write about.

Dr. van der Kolk: Yes, good. Yes, those are the guys who teach us.

Dr. Dave: Yes, right, right. You know, I don't think PTSD even existed as a term.

Dr. van der Kolk: Oh, no. Certainly not in the mid-'60s. No, that didn't come about until 1980.

Dr. Dave: Yes.

Dr. van der Kolk: Even after that, it took a while before it started to get utilized.

Dr. Dave: Yes, yes. And mostly, I think, when we hear the term "PTSD", I think the image that comes into most people's mind is that of soldiers damaged by war. But you say in your book that trauma is ubiquitous in our society. So, what's behind that statement?

Dr. van der Kolk: Well, for every soldier who gets PTSD from war there are about 30 kids who develop some sort of toxic stress from child abuse and neglect. For every soldier who gets killed in the war zones, there is at least one woman who gets killed by her boyfriend or husband. More kids get killed by handguns than get killed by leukemia. So, trauma is pervasive in our society.

Dr. Dave: Yes, these are sad statistics.

Dr. van der Kolk: Yes.

Dr. Dave: That raises the question: does everyone who experiences trauma develop PTSD?

Dr. van der Kolk: Well, you know, PTSD is just a list of symptoms developed by various committees over time. And so there is no such thing as PTSD except that it captures what people suffer from to a greater or lesser degree. So, people are more or less affected by trauma.

Dr. Dave: OK. So some are more affected than others.

Dr. van der Kolk: You know, with the population I treat, I never sit in my office and think, "Oh, how could this person possibly have developed PTSD in response to this? Anybody else could deal with that." My response is always "Oh my God, how did you survive? How did you go on?" Horrendous things happen to people all the time.

Dr. Dave: Right. Now, what do we know about those who don't develop the symptoms of what we call PTSD—those who are in fact subjected to some sort of traumatic-type experiences but don't develop it? Do we know anything about that process?

Dr. van der Kolk: Well, see, again, the interesting thing is how people survive and not whether they... we don't know about people who don't come to our attention. You know, there is very pervasive post-traumatic stress in our population. And it is much more interesting to talk about what effect it has on people than speculating about who might not develop it after a gang rape, or after seeing your kid being killed by a sniper, or something like that. That is not so interesting. The issue is that there are millions of people who suffer from it, and those are the people we need to help.

Dr. Dave: Yes. So what led you to write your book, *The Body Keeps the Score*?

Dr. van der Kolk: What led me to write it? Well, many different things. One is that the issue of how pervasive trauma is throughout psychiatric diagnosis and throughout suffering is not very widely known. That is one thing. The other thing is that psychologists tend to believe in the infinite capacity of talk to resolve things.

Psychiatrists tend to believe in the infinite capacity

ity of drugs to solve things. And as it turns out, neither talk nor drugs are the definitive answer to treating posttraumatic stress.

Dr. Dave: Yes, and we'll be getting into that further on in the discussion, for sure. And I did mention the VA—I had intended to ask you, how did you get into working with trauma? Was it your experience in the VA that got you started?

Dr. van der Kolk: Really, Vietnam veterans. The opening scene of my book is meeting a Vietnam veteran who had nightmares, and I had done studies of nightmares, so I gave him a drug to abolish his nightmares. And when I asked him whether he had taken my wonderful medication, he said, "No, because if my nightmares go away, I will be betraying my friends. I need to be a living memorial to my friends who died in Vietnam."

Dr. Dave: Wow.

Dr. van der Kolk: And that statement just bowled me over and made me realize that traumatic stress is a very complex issue. It is not simple. The brain's fear circuits, or memories, aren't just chemicals but really a complex identity and social issue, as well.

Dr. Dave: Yes. Well, that kind of leads to my next question. You have been working with traumatized children and adults for more than 30 years. What sorts of changes have you seen over that period in terms of both our understanding of trauma and the way that it's dealt with?

Dr. van der Kolk: Well, we have learned a lot about how trauma affects the brain, how it affects neuropsychological processes, how it impacts on interpersonal relationships, and we have learned a lot about treatment. We have learned that something like EMDR can very successfully resolve the traumatic memories. We have learned that trauma is mainly stored, not so much in terms of a story about the past, but as a body that continues to react as if it is in danger and as if it's helpless.

And so the body needs to be worked with in a variety of ways. We have learned the impact of development and the issue of attachments, and how disruptions of attachment, as in being separated from your caregivers and being neglected or going to an orphanage, is not the same as being run over by a truck when you are an adult. And so we have learned much more about the very complex adaptations that people have at various ages in response to various forms of disruptions of their lives, etc.

Dr. Dave: OK, well let's step through some of those. You mentioned the brain and you have a very

solid and lengthy of discussion of the impact on the brain. So, how have recent developments in neuroscience impacted your understanding of toxic stress and how to treat it? What happens to the brain?

Dr. van der Kolk: Well, the orientation of the brain has changed in that it gets more oriented to pay attention to sources of threat and it becomes very difficult to dampen sensations that are related to trauma. So, certain images, sounds, and physical sensations that are reminiscent of the past set up these physiological responses, and in order to dampen that you need to actually calm the body down and deal with the traumatic memory. So that is one thing. The second thing we discovered is how the whole filtering system in the brain changes so that the brain filters in more danger and less pleasure. We have learned how it becomes very hard to pay attention to ordinary stimuli. The brain gets re-oriented to deal with stress but actually becomes quite poor in dealing with day-to-day, minor variations of life. So, we now understand why it is that traumatized people have such a hard time feeling love, affection, and excitement about very ordinary events.

Dr. Dave: Now, you have done all sorts of research in this area and I believe you have also done some brain imaging research. What were you studying using that tool, and what did you find?

Dr. van der Kolk: Well, my group and I did the very first neuroimaging study on people having flashbacks. That turned out to be a very interesting study. We discovered that when people relive their trauma, a fair amount of their brain actually goes offline, particularly in the left anterior prefrontal cortex where the capacity for analyzing, understanding, and language is located. So, essentially we were able to visualize how people become dumbfounded...

Dr. Dave: Yes.

Dr. van der Kolk: ...and struck with speechless terror. That is a very big issue. The other thing we discovered or confirmed was that when people relive their trauma, their survival brain, their emotional brain, becomes very activated, and their frontal lobes, their more rational brain, gets deactivated, so that people sort of "take leave of their senses" in some ways—so that people's cognitions fail them. We learned that the insula, the part of the brain that's involved in registering and noting what is going on in your body, becomes impaired, so there's a decreased body-mind connection that needs to be reactivated. Various people have discovered that the medial prefrontal cortex—the part of the brain that

allows you to feel yourself, notice yourself and be in touch with yourself—gets quite thrown off track, basically, so that it is really hard to notice what goes on inside of you and to manage what goes on inside of you.

Dr. Dave: I would imagine that leads to what gets described as “numbing”.

Dr. van der Kolk: Well, initially it starts off as agitation and feeling frazzled and feeling upset. And so, you are at odds with your environment, because stuff is always bothering you because your filters don't filter out relevant from irrelevant information. And minor things get you upset. A little noise that your kids make makes you blow up. And so you become a very difficult person to live with oftentimes because stuff keeps going wrong. So the way to deal with that is to, over time, numb yourself down.

Dr. Dave: Yes.

Dr. van der Kolk: And here, there is a big difference between if you are a kid who's traumatized and if you are an adult who's traumatized. If you are an adult who's traumatized, you tend to manage being frazzled, upset, freaked out all the time by external means. So, people start taking psychiatric medications or they start taking drugs or they start engaging in dangerous activities. So, they tend to do things with which they intend to manage feeling frazzled and hyper-aroused all the time. When you are a kid and you are upset, you have one great advantage: you have parents.

And, if your parents are there for you and they pay attention to you, they can take care of you by rocking you, holding you, reading bedtime stories to you, and hugging you and all kinds of stuff. That is kind of the natural function of parents is to be affect regulators of their kids. And so, when kids get upset and traumatized, if you have parents who are there for you, by and large your relationship with your parents can help you to restore your well-being. But if your parents or caregivers are the origin of your stress, then you need to find your own ways of calming yourself down, and that may involve rocking, banging your head against the wall, cutting yourself, chronic masturbation, shutting yourself down on other levels. And so, trauma that occurs in the context of attachment relationships has particularly damaging effects on self-regulation issues.

Dr. Dave: Yes. It's interesting the way that brain science and attachment theory seem to be reinforcing one another. There's a very synergistic understanding that's developing.

Dr. van der Kolk: Because the brain is an attachment organ. I think that oftentimes that gets forgotten by the NIMH and other brain scientists, is that the function of our brain is to hang out together and to get along with each other. The function of the brain is to make us into a social organ. And, almost all mental disorders cause disturbances in interpersonal relationships. The brain is an interpersonal organ. We don't exist as individuals, basically.

Dr. Dave: Yes, so that gets into the area of what's being called interpersonal neurobiology. So that's contributing to your understanding and work as well.

Dr. van der Kolk: Absolutely. A very important part of it.

Dr. Dave: Yes.

Dr. van der Kolk: The big new things that are described in my book are just fancy terms described more simply as interpersonal neurobiology: how brains and minds and bodies affect each other and the development of psychopathology. The whole issue is that the impact of bad life experiences is different from when you're two years old or eight years old or twelve years old or thirty years old. As the brain is growing and you don't get seen or comforted or consoled—it has quite profound effects on brain development, actually.

Dr. Dave: Yes, so are there actual changes in the brain that are more or less permanent, or are there anatomical changes, even?

Dr. van der Kolk: Well, there are certainly changes that can be regularly seen with neuroimaging—changes in the anterior cingulate, in the corpus callosum, in the amygdala, in the cerebellum, in the periaqueductal gray. You see, there are markedly different activations of different parts of the brain, and Marty Teicher, my colleague at Harvard, is just beginning to spell out how different forms of trauma have different effects on different parts of the brain. It will have major impact on treatment, which right now is still too crude to incorporate all these changes. But, there are different effects at different times, and if I were running NIMH I would put most of my money into studying neuroplasticity to see how you can reverse the damage that's being done by abuse, neglect and other very adverse circumstances—how you can reverse them and most effectively do that.

Dr. Dave: Yes, yes. And you probably have as much of a chance to move things in that direction as anybody, right?

Dr. van der Kolk: I have just as much chance to

move things in that direction as you have or any of your listeners. To change that basic orientation that indeed the brain is affected by having to cope with terrible, disruptive stuff and changes people's capacity to learn, to engage, to get along with other people is a critical understanding. But I feel like I have not made enough headway with the mainstream of the profession to help people to really incorporate it in their understanding of human beings.

Dr. Dave: Yes, so is that one of the hopes for your book? Is that kind of the audience that you primarily had in mind when you wrote your book?

Dr. van der Kolk: Well, actually, one of my readers on Amazon said, "This book should be read by anybody who has an interest in human beings." So, that is really what I hope—any person that is interested in human beings will read it, and will get something out of it, I am sure.

Dr. Dave: Yes. Now, earlier you mentioned flashbacks, and I think that has to involve memory. And you have a wonderful chapter on memory, and the impact of trauma on memory seems to be really pivotal. So, you start off by referring to Freud and Charcot and their work on hysteria. Maybe you can take us through what they got right and what they got wrong.

Dr. van der Kolk: I think they got most things right. I mean, they were smart people. The person you shouldn't leave out is Pierre Janet, who was the first person to really spell it all out. But all of those guys understood that the nature of trauma is that at some point the mind becomes overwhelmed and can just not take in what's happening, integrate what's happening; and at the core of traumatic experience is an element of dissociation. The brain cannot integrate the experience and it stays on in the mind as unpleasant sensations, intense emotional disruptions, images that keep coming back, behaviors that get repeated, a real lack of integration of body-mind functioning. Both Janet and Freud back in 1893 wrote spectacular papers about it. Basically, from beginning to end, they are accurate presentations of what happens in traumatized people.

Dr. Dave: Yes, you gave some wonderful quotes from their work in your book, and reading the quotes, I thought, "Wow, that sounds so contemporary!"

Dr. van der Kolk: Yes, well you know, these guys got it. I mean, they were not necessarily less smart than we are today, you know. We haven't become more intelligent. We just have better technology today to explain things. But in terms of clinical observations, these guys were as good as anybody who's

ever been around. That is really the disintegration of memory. And all of these guys talked about how the treatment of traumatic stress is to integrate memory and help people with feeling these memories in their organized and quiet ways so they can begin to experience something belonging to the past rather than to the present. And that is very hard to argue with.

Dr. Dave: Yes, the emphasis they gave, too—that it wasn't just a recounting but it had to be a recounting with feeling and engagement—that seems to me to line up very well with some contemporary research on memory.

Dr. van der Kolk: Although, our research shows that just being able to recount it with affect doesn't necessarily resolve the traumatic stress.

Dr. Dave: Yes. That is fascinating. I was really impressed in reading your discussion of repressed traumatic memories and the way that tide has shifted one way and the other over time. Up until recently that was a huge debate, and now it seems like it's more or less a closed door. The tide has really turned against the notion that traumatic memories can be repressed. In fact, several of my past guests have come out strongly asserting that science has shown that to be a myth, and that courtroom defenses based on that phenomenon are no longer accepted. Yet your research shows just the opposite. This is a topic with enough juice that we could develop a whole interview on it.

Dr. van der Kolk: No, as long as people have seen, worked with, and dealt with trauma, they are always impressed with how the traumatic memory goes offline in many people. Every study that has ever studied a traumatic population has found it, except one study that studied parents who had seen their kids being murdered.

Apparently, that didn't go underground for anybody. But anybody who studies wars or car accidents or rapes, or certainly child abuse, finds that a certain proportion of people forget their memories. It is just an incontrovertible issue. And, certainly I testified in the federal courts several times about it, and they accepted the notion of repressed memory. So, don't believe those people who tell you that repressed memory doesn't occur. An essential part of trauma is also part of the...even the DSM, in all its lack of wisdom, recognizes the existence of dissociative amnesia.

Dr. Dave: Yes, I was impressed by the way that you went back and you looked at records of people who had been in concentration camps during the

second world war and the painfulness of the memories and their reluctance: both their inability to effectively remember in a coherent, sequential way the events, and also the intense avoidance and resistance to remembering that stuff. And then you go on to point out how in your view there is even a cultural resistance to looking at that, so that there is this kind of swing in terms of the acceptance or coming to terms that this is a phenomenon that happens to people.

Dr. van der Kolk: Now, you see, people like to chat about vacations and pleasant things, but that is not what we are talking about. We are talking about trauma. We are talking about seeing somebody blown up in front of your face. We are talking about being gang-raped—stuff like that. And so we are talking about things that completely overwhelm a human being. When you hear it and you see it—the experiences—you go, “Oh my God, nobody could possibly survive this and come out on the other side.” So this is not about unpleasant stuff. It is not like burning your potatoes. This is about horror. And the brain is not capable of taking in and digesting horror in a neutral way. And so the moment you start going there, your brain becomes overwhelmed, and part of neuroscience is that you see how different parts of the brain just get knocked out as you get into a state of horror. And the bigger issue, to me, is how society doesn’t want to take trauma into account. You have this big debate about black kids getting killed by police all the time, stopped by the police all the time. And people say, “It’s not so bad. It doesn’t matter.” But if you are a little kid growing up and you get constantly stopped by the police and your friends get killed in the process, that, really, has quite an impact.

And the same thing...like before the US invaded Iraq. There was no discussion about what would happen to these soldiers who would go to war, even though we know from every previous war that’s been studied that a very substantial number of people who go off to war come back and become alcoholics and become drug addicts and become unemployed and commit suicide. So, any of that stuff that is coming out today with the Iraqi and Afghani veterans is very old news. That is totally expectable.

So, what is more concerning to me is the false memory syndrome of the media and of mainstream organizations that keep ignoring the effect of trauma and don’t implicate it in our school systems and in the military and in the way we lead our lives.

Dr. Dave: And how about the political decision-

makers? I mean, before we went into Iraq, I was practically tearing my hair out, saying, “Don’t they remember Vietnam? This is looking like Vietnam all over again.”

Dr. van der Kolk: Yes, I would call that a false memory syndrome.

Dr. Dave: OK.

Dr. van der Kolk: You see, our society parallels the lives of victims and they keep doing the same stupid stuff over and over again, unable to learn from experience. And that is true for traumatized people. People who grew up with an alcoholic father, whom they were horrified by and loved at the same time, have a tendency to fall in love with alcoholic guys who need to be saved. So, people have this astounding compulsion to repeat the trauma, which of course Freud was also interested in, and society keeps repeating the trauma over and over again, until you learn—another important motivation for me to write this book.

Dr. Dave: Yes. And I think to a large degree, your impulse to write the book was also to critique some of the mainstream treatments for PTSD today in this country. So tell us, what are the mainstream treatments, and how effective are they?

Dr. van der Kolk: Well, actually, I am not a modest person. I think I am mainstream.

Dr. Dave: Oh, OK, you think you’re mainstream? OK.

Dr. van der Kolk: When you get to talk to 50,000 people per year as I do, it is not unreasonable to claim that you own part of the mainstream.

Dr. Dave: Yes, OK. But what about that other part that you are critical of?

Dr. van der Kolk: Well, you know, I think people need to figure out for themselves what works and doesn’t work. My book is not a polemic against other people. My book is about what we know about trauma and the brain and relevance and how we can treat it.

Dr. Dave: Yes, that is true. It is definitely not a polemic against other people or approaches. So, let me ask you specifically: what about the use of drugs in the treatment of PTSD, and how effective are they?

Dr. van der Kolk: They can be helpful. They can make it a little bit less intense. They don’t cure trauma. But they can help people sleep sometimes or some days make people a little bit less depressed—or, a little bit more engaged. It doesn’t resolve the trauma. And the other interesting thing about psy-

chiatric drugs is that when we do our studies in civilian populations, we get about a 30% drop in their symptoms. Not great, but it is somewhat helpful. But almost all the studies done on military populations have been failed studies. So, there is something about combat trauma that doesn't seem to respond to medications very well. And somehow the VA and the Department of Defense seem not to have read those studies that show that medications really aren't that effective for PTSD in soldiers and veterans. The other big issue is the use of drugs in traumatized kids. And that is really a very important issue because I consider one of our major public health issues in this country to be that over half a million kids are taking antipsychotic agents, and the poorer you are, and the more you go from foster home to foster home, the more you are on Medicaid as opposed to private insurance, and the more likely it is that you'll get drugs to control your behavior. And that is a very, very alarming trend that we need to have a much more public discussion about. These drugs really interfere with the capacity of kids to be curious, to be motivated, and to engage in relationships with other people. So, I think you are raising hundreds of thousands if not millions of kids whose prognosis to become healthy adults is in fact impaired by the drugs given to them rather than helped. So, that is a very big issue.

Dr. Dave: Yes, it is. And, what about cognitive behavioral therapy and exposure therapy, which I gather is very big, particularly in the VA.

Dr. van der Kolk: Yes. Cognitive behavioral therapy is very useful for people who have cognition, and so if you can think and reflect on yourself, it is a very good treatment. What the research shows over and over again is that when you go into these traumatic modes, your cognition goes offline.

Dr. Dave: Yes.

Dr. van der Kolk: For example, anger management classes are wonderful, as long as you don't get angry. Because the moment you get angry, there is a whole cognition involved of "this is what it means and that is what I should do" that tends to sort of go offline. See, trauma is not a cognitive issue. It is not the result of being stupid or not being able to have a proper perspective on life. It is not that part of the brain. Trauma sits in your survival brain, where your brain automatically gets triggered into feeling like you are under threat, and like you are in danger and that life is almost over. And so, it's a different part of the brain. So, cognitive behavioral treatment is for one part of the brain, but it doesn't work on the part

of the brain where trauma mainly has its impact.

Dr. Dave: Yes, that seems like a major point.

Dr. van der Kolk: Well, it is a major point.

Dr. Dave: And I would think that's the message, one of the very important messages, that really needs to get out there.

Dr. van der Kolk: Yes, but I imagine that sooner or later people will figure that out for themselves. I mean, when your patients keep not getting better, or have only a 10% improvement, sooner or later I hope you say, "Hmm. I wonder if it can be better than this?"

Dr. Dave: Yes.

Dr. van der Kolk: And the other thing that is important here is that...another piece of neuroscience research shows that the relational, yakking part of your brain, which is on both sides of your brain, can be very helpful for, like, conversation that you and I are having, which is the social brain. It is very nice for us to talk about things and dispute things and set up programs and cook Christmas dinner and stuff like that. But, that part of the brain doesn't change the deeper structures of the brain where the trauma actually sits. And so the only structures of the brain, of your consciousness, that we know can change your deep survival issues are the medial prefrontal cortex, called in neuroscience the midline structures of the brain. I call it the "Mohawk" of the brain, that runs from just in front of your eyes and all the way to the back, through the middle of your brain. And that is the part of your brain that is devoted to self-observation and self-reflection. And it turns out that the only part of your consciousness that can change these deeper structures is this self-reflective part of the brain. And so, the issue of mindfulness—mindfully observing yourself, mindfully noticing yourself—is an essential element of beginning to deal with trauma.

Dr. Dave: Aha.

Dr. van der Kolk: And so, you cannot really deal with trauma unless you develop some sort of commitment to observe yourself and notice yourself and to spend time with yourself in silence.

Dr. Dave: Aha. Now, I wonder if you're familiar with Philip Zimbardo's work on trauma, suggesting that individuals suffering from PTSD need to be trained to shift their time perspective from focusing on the past to focusing on the present and the future. That might relate to what you just said.

Dr. van der Kolk: That sounds a little cognitive

to me. Again, it is not a cognitive issue, learning to still yourself and observe yourself. Meditation, yoga, mindfulness is essential. Because, indeed, when you're traumatized, your brain is oriented towards reliving the past. And the past comes into the present. I have a lot of data throughout the book about various brain things that go wrong and keep you in the past. But indeed it becomes very hard to focus on the present. And so, people should not be admonished to be in the present, because if you see what actually happens to people's brains, you'll know that their brains aren't very geared towards being in the present. Like, your prefrontal cortex doesn't have a lot of high beta waves that make it possible for you to be very focused on what's going on. So if I were admonishing people, it wouldn't help to do that. So, one way is with something like neurofeedback where you can actually retrain people's brain waves in order for people to be focused on the present and to be still and to be attentive. We can also train these issues by helping people to just be very focused on the moment with things like martial arts or drumming or yoga, where your body just has to pay attention to what is going on right now. So, admonishing people I think is...I have a rule at my office where if I admonish my patients, I don't charge for the sessions.

Dr. Dave: [laughs] OK. That's good.

Dr. van der Kolk: The job for us, as clinicians who get paid for doing this work, is to actually have tools in our toolbox that can help our patients to do what they need to do.

Dr. Dave: That is somehow reminding me of stories about traditional Chinese doctors, or healers, who would get paid only as long as people were healthy. I don't know if that is really true or not.

Dr. van der Kolk: I think that is a good idea, basically. It would mean I would not have been able to raise my kids, because for the first fifteen years after my training, I basically didn't know anything about how to treat people. So, that means that therapists usually wouldn't get any income until about twenty years after they finish.

Dr. Dave: Wow. OK. [laughs] What is your opinion about efforts in the U.S. military to put all soldiers through some sort of resilience training?

Dr. van der Kolk: Well, I got into trouble about that. I think, again, thinking cheerful thoughts does not really undo the images of people being blown up, killing people, seeing your best friends being killed, seeing these horrendous things and participating in those kinds of things. As I said on PBS at

one point, this is Dale Carnegie meets The Killing Fields. It doesn't quite work that way.

Dr. Dave: Yes, I think there is even an ethical concern. Do we want to have soldiers that are in some way robotic and immune to the horrors that they're involved in?

Dr. van der Kolk: Well, you know, that's really of course what it is all about to go to war and to kill a lot of people and not get killed yourself. That is the purpose of the military. And so, their job is to create people who can do that and do not come home wounded. So, that is their job. And so it becomes a political issue, rather: do you want to be a country that does that all the time? So that is a political issue. Of course the military is very good at training people like that. Basic training is an extraordinarily effective psychological treatment to help very disorganized, all-over-the-place kids become very well trained soldiers who are very good at what they do. And so I think the military really figured it out, about how to change people's brains in order to get very focused in the present and to become a very effective fighting force. Now, I wish they would become just as good in de-training people to become involved in civilian life and to be totally focused on civilian life. And the methods may have some similarities to the methods of basic training.

Dr. Dave: That's an interesting concept to have—I'm picturing a basic training camp for a period of some weeks or months at the end of military service; that instead of people jumping on a plane and suddenly finding themselves back in society, there would be a period kind of as you suggested—kind of a boot camp that really gets them ready for all that.

Dr. van der Kolk: Yes, again that's just part of the picture, of course, because again, the military is only 10% of our overall national trauma. So it's still a rather small population, even though lots of the resources go there.

Dr. Dave: Yes. Is it reasonable to talk about a cure for PTSD? Or is it more of a condition that, the best one can hope for is to somehow develop an accommodation to it?

Dr. van der Kolk: Actually, you can read from my book. Every treatment chapter has a number of cases in there, and some research background in most of them, though not all of them, that showed that people got cured from their trauma. And so, in the end, my book is a very hopeful book that shows that if you really apply the resources and the knowledge we have about PTSD, it is very likely that people can recover to a very large degree, if not fully.

Dr. Dave: OK. Now, you end up recommending elements from ancient practices, such as yoga, tai chi, drumming and drama. I am wondering, how did you first get onto this and, you know, maybe you're just a guy like me who came up through the '60s and so all this stuff seems like a good idea.

Dr. van der Kolk: You know, whether you grow up in the '60s or you grow up as a scientist, life is a question of experimental efforts. And so you see what works.

And if something doesn't work, you try something else. And when you learn a piece of information about how the brain works, or how trauma affects people, you need to apply that information to see what the implications are. For example, when you find out that people with PTSD have brain wave patterns similar to that of ADHD, which makes it very hard to focus, then you need to examine: "How can we help people to focus?" And then, when it turns out that drugs may not be the best way, it turns out that maybe helping people to play computer games with their own brain waves and change their brain waves that way might be more effective. So, a big part of our research effort, is to establish the validity of neurofeedback as an effective treatment for PTSD, which we certainly find is the case. Our most recent data—that came out after the book was finished, actually—showed that neurofeedback can dramatically enhance executive functioning in people. I don't know anything else that does that. When you learn that people who are traumatized have poor heart rate variability, i.e., some brain stem issues that your guest Stephen Porges has talked to you about on your program, and you find they have very poor arousal modulation—secondary to brain stem issues—then you need to figure out how you can increase people's heart rate variability. And that led us to studying heart mass, and got us involved in yoga. And you see, the midline structures of the brain that have to do with self-observation and somatic awareness get knocked out in chronically traumatized people; you have no choice but to start exploring what particular methods can help people to have more of a relationship to their internal world, their visceral world, and you get into somatic-type therapies.

Dr. Dave: Yes. Now, you mention neurofeedback, and that is a bit different than biofeedback, and I want my listeners to be aware of that. So, maybe you can say something about the difference between neurofeedback and biofeedback.

Dr. van der Kolk: Well, it is all feedback. In bio-

feedback, you feed back people's heart rate or skin conduction, and you get a different level of arousal through peripheral means. In neurofeedback, you actually harvest people's brain waves and you can actually analyze their brain wave patterns with something called a quantitative EEG, and you can see what part of the brain is not properly talking to other parts of the brain, and then you can actually help people to reconnect those brain areas and brain waves through feedback.

Dr. Dave: Yes. Another approach that you extol the benefits of is EMDR. What do you see as the mechanism through which it impacts traumatic memories?

Dr. van der Kolk: Oh, I love that question because, yeah, that is a very good question. Because, of course, we know exactly how Prozac changes people. And then we know exactly how talking changes people. So it is interesting that people always ask, "So...?" But they don't ask, "So, how does talking work?" So, throughout the book, I do try to address the issues of how does Prozac actually work and how does talking work. And how does talking actually change the brain, which is a much more mysterious thing than EMDR. EMDR seems to work by activating a 40-MHz band of cortical rhythms, which are the same rhythms that you experience during REM sleep, during your dream sleep. That helps the brain to process daytime residues and moves it from the sensory area of the cortex into the thalamus, into the prefrontal cortex.

Dr. Dave: Oh, that is interesting. I had not heard EMDR explained at that neurological level. So, that is very interesting. What do you wish that more people understood about trauma?

Dr. van der Kolk: That telling people not to be scared, or telling people to behave, makes them only more scared, and makes them only feel more alienated. And, I wish that people would understand more that trauma is the result of horror.

Horrendous experiences. And the only way to overcome that is to help people to feel completely and totally safe, at least for some moments, and that the brain needs to be helped to be calm and safe in order to reconstruct and reprocess the things that have gone offline at the time of the horrendous experience.

Dr. Dave: OK, well, that could be our wrap-up there. Is there anything else you would like to add, by way of summary?

Dr. van der Kolk: Yes. It is something that I don't

need to tell you, because I am sure you are aware of it. But, we are relational people. And relationships in which we feel safe—in which we can say what we want to say, in which we can safely explore what's going on inside of us, in which we are not being prescribed to behave in a particular way, but are invited to really get to know ourselves—these are central. Trauma is about being unable, being too overwhelmed, to know what you know and feel what you feel. And the treatment of trauma is making it safe for people to know what they know and feel what they feel.

Dr. Dave: OK. Well, I really want to thank you, Dr. Bessel van der Kolk, for being my guest today on Shrink Rap Radio.



Dr. van der Kolk: It is a pleasure to talk with you.

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The Body Keeps the Score

Bessel van der Kolk

THE BODY
KEEPS THE SCORE

BRAIN, MIND, AND BODY
IN THE HEALING OF TRAUMA



BESSEL VAN DER KOLK, MD

A pioneering researcher and one of the world's foremost experts on traumatic stress offers a bold new paradigm for healing

Trauma is a fact of life. Veterans and their families deal with the painful aftermath of combat; one in five Americans has been molested; one in four grew up with alcoholics; one in three couples have engaged in physical violence. Such experiences inevitably leave traces on minds, emotions, and even on biology. Sadly, trauma sufferers frequently pass on their stress to their partners and children.

Renowned trauma expert Bessel van der Kolk has spent over three decades working with survivors. In *The Body Keeps the Score*, he transforms our understanding of traumatic stress, revealing how it literally rearranges the brain's wiring—specifically areas dedicated to pleasure, engagement, control, and trust.

He shows how these areas can be reactivated through innovative treatments including neurofeedback, mindfulness techniques, play, yoga, and other therapies. Based on Dr. van der Kolk's own research and that of other leading specialists, *The Body Keeps the Score* offers proven alternatives to drugs and talk therapy—and a way to reclaim lives.

"In this inspirational work which seamlessly weaves keen clinical observation, neuroscience, historical analysis, the arts, and personal narrative, Dr. van der Kolk has created an authoritative guide to the effects of trauma, and pathways to recovery. The book is full of wisdom, humanity, compassion and scientific insight, gleaned from a lifetime of clinical service, research and scholarship in the field of traumatic stress. A must read for mental health and other health care professionals, trauma survivors, their loved ones, and those who seek clinical, social, or political solutions to the cycle of trauma and violence in our society."

—Rachel Yehuda, Ph.D., professor of psychiatry and neuroscience, director of the Traumatic Stress Studies Division at the Mount Sinai School of Medicine, New York, NY

"This is an absolutely fascinating and clearly written book by one of the nation's most experienced physicians in the field of emotional trauma. *The Body Keeps the Score* helps us understand how life experiences play out in the function and the malfunction of our bodies, years later."

—Vincent J. Felitti, M.D., chief of preventative medicine, emeritus, Kaiser Permanente San Diego; co-principal investigator, ACE study