What Neuroscience Teaches Us about the Treatment of Trauma

A Webinar Session with
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and Bessel van der Kolk, MD

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Dr. Buczynski: Hello everyone and welcome back to this series on the treatment of trauma.

I'm so glad that you're here; there are thousands of practitioners listening tonight from all over the world. This series is growing – as did the new brain science series just a few months ago.

Tonight we have a very, very special guest; this is Dr. Bessel van der Kolk. He is active as a clinician, researcher, and teacher.

He is professor of psychiatry at Boston University Medical School – and just a *brilliant* man who has influenced the thinking of almost every other speaker-expert that we've had on the series.

So, Bessel, thanks for being here – and welcome back to you as well.

Developmental Trauma Disorder

I would like to start with developmental trauma. You talked about developmental trauma disorder before.

Some of the people that are here tonight were also on our call last time, but some of them weren't, so let's just start by talking about what *is* developmental trauma disorder – and we'll take it from there.

Dr. van der Kolk: When we first started looking at trauma, we were looking at Vietnam veterans, and those were people who were haunted by their memories about Vietnam. They would get triggered and blow up.

But it was pretty discrete – why they were reacting in this way and what their nightmares were about….

"The majority of trauma survivors who come into our practice don't have sharp memories."

This notion of PTSD became *the* pharma diagnosis. Then, very quickly, we realized that the majority of trauma survivors who come into our practice, which is the majority of almost anybody's practice, don't have sharp memories.

"When we look at trauma, we find that bodies and minds behave and react to the world as if *under siege*."

They just *feel* a certain way about the world. They react to the world in a particular way, but their troubles are in the moment: they get scared, upset, frightened, angry, withdrawn, and numbed-out – but they don't know why that is.

When we look at people like this, we find out that their bodies and their minds, their physiology and their brains, continue to behave and react to the world as if they're *under siege*, much as they were as kids.

But there's no conscious connection between that and what is happening right now.

"Even though life was pretty good right now, they still saw the world through the lens of their past trauma."

What we began to realize, through many people's work and research, is that their brains and their minds are shaped by their trauma. Even though their life was pretty good right now, they didn't really know that and they still saw the world through the lens of their past trauma.

As we looked further into this, we tried to get a new diagnosis in the *DSM4*; we did a field trial for that and looked at three different populations: acute trauma, domestic violence population and childhood trauma in people who had grown up.

We discovered then that people with histories in childhood trauma have a very different constellation of problems than people who have car accidents or who get raped or have some incident like that as adults for the first time.

What is surprising at this point is that our committee voted nineteen to two to adopt a new diagnosis for complex trauma (DESNOS - Disorders of Extreme Stress Not Otherwise Specified) and, for reasons that have never been clear to me, that was thrown out.

"We have never been able to develop good treatments that are specifically geared to people who have long-term histories of trauma."

Our recommendation was thrown out. The diagnosis never made it – which to my mind is very disturbing, and *because* of that, we have never been able to develop good treatments that are specifically geared to the bulk of our patients – namely people who have long-term histories of trauma.

We're stuck with treatment development in the area of acute one-time trauma or in the area of grown-ups who get traumatized for the first time.

We really don't have a way of conceptualizing and understanding what the issues specifically are that we need to address when we treat our patients.

That was part of the motivation for creating the *National Child Traumatic Stress Network*, which now is a very large network of sixty-four clinics and all kinds of alumni organizations.

There are about a hundred and twenty organizations around the US who are treating large numbers of trauma.

Childhood Trauma: Attention, Affect Regulation, and Relationships

We collect all kinds of different ways of treating patients to see what happens with those kids, and we're really beginning to develop a discipline of childhood trauma.

"When we look at kids and as they grow older, their problems are very different from PTSD."

This is what we see when we look at these kids and as they grow older: their problems are very different from PTSD.

Their problems primarily have to do with attention – being able to focus in and to engage in a very steady, consistent way.

Kids (with trauma) get thrown off – they have a hard time really focusing – sticking to and concentrating and filtering irrelevant information out.

They get hijacked, and that's one very big issue, which deserves its own special series of treatments.

Secondly, the core issue is affect regulation. We have our emotions in order to tell us what to do and where to go – to orient our bodies and our minds to the reality around us.

"The core issue is affect regulation... Traumatized peoples' emotions become too extreme or they become too quiet."

Traumatized peoples' emotions become too large, too extreme or they become too quiet and once they get activated, unlike people who are doing pretty well, they get upset and ten minutes later they're fine again – they go back to work.

Chronically, traumatized people keep getting stuck on something that happened yesterday, and today, they're still out of sorts about it, and tomorrow they'll still be out of sorts about it – their whole weekend is hijacked by something that's happened.

"Drugs and alcohol, self-mutilation, and eating disorders all seem to be chronic adaptations to this affect dysregulation problem."

They deal with this hijacking by trying to calm themselves down in any way they can – that's where the whole issue of drugs and alcohol, self-mutilation, and eating disorders comes in.

These all seem to be chronic adaptations to this affect dysregulation problem that you see in this population.

The third area is one of relationships. If someone has messed with you, you will have a basic perception of the world that people will hurt you and make you not feel safe – that you're helpless…

So, you position yourself in the world as somebody who should always protect yourself, or as somebody who should be aggressive or arrogant or distant, or as someone who is dependent, compliant, and there to please everybody. If you stand up for *yourself*, terrible things will happen to you.

Those are the three different areas of (childhood trauma). It's not about memory, but it's the formation of the self, the brain, the mind and body.

Dr. Buczynski: Let's just review the three different areas…

Dr. van der Kolk: The first is attention. Attention has to do with focusing – paying attention.

Almost all the kids we treat – and we treat a large number of kids in our clinic – meet the diagnosis criteria for attention deficit disorder.

"Almost all the kids we treat in our clinic meet the diagnosis criteria for attention deficit disorder."

They almost always come with a diagnosis of attention deficit disorder, which isn't so bad.

I'm not really convinced that giving medications for attention deficit disorder is dramatically bad for traumatized kids, but we don't know that for sure. So that's one area – and that, of course, persists into adulthood.

The second area is affect dysregulation that makes people too angry, too intense, too upset, and too reactive.

Now, almost every kid who comes to our clinic gets misdiagnosed as having bipolar disorder, and therein hangs a very important tale.

"Because people don't see the trauma issue, kids get antipsychotic medications."

Because people don't see the trauma issue, these kids get treated for their affective arousal, which usually means that they get antipsychotic medications – they get medications that block the dopamine system.

The dopamine system, indeed, makes people aroused, but it also makes people motivated, and it makes people have an interest in things – to be passionate.

If you block kids' dopamine system, you knock out their capacity to become engaged and motivated.

If people are going to keep kids on antipsychotics for any length of time, the likelihood that these kids will grow up to become well-functioning, engaged, passionate, committed adults is very slim.

"If you block kids' dopamine system, you knock out their capacity to become engaged and motivated."

I see that as a very large, gigantic public health issue. Last year the U.S. spent 16.1 billion dollars on antipsychotic-like drugs for kids.

This is a national disaster that these kids get misdiagnosed. Unless you help these kids to deal with the trauma, you're just stirring this all up.

Unless we have self-regulatory methods that do not involve drugs, but help them to regulate themselves, they're going to be very disabled adults.

"Last year the U.S. spent 16.1 billion dollars on antipsychotic-like drugs for kids."

Dr. Buczynski: This becomes particularly critical for all of the pediatricians that are on the call, perhaps family doctors, school nurses, nurse practitioners…all of the people as well as parents on the call…because bipolar disease is the diagnosis *du jour* nowadays.

Dr. van der Kolk: It is. It is a disastrous diagnosis for our kids.

People take it as (truth) and there is a lot of controversy about it in psychiatric circles

Now they have a new diagnosis in *DSM5,* "Affect Dysregulation Syndrome," which really isn't going to help because it's still isolated from what these kids are actually trying to deal with.

"In our field trial for childhood trauma disorder, we're looking at the overlap between ADHD, self-mutilation, regulatory disturbances, and trauma syndromes."

In our field trial for childhood trauma disorder, we're looking at the overlap between ADHD, self-mutilation, regulatory disturbances, and trauma syndromes.

While the study isn't complete yet, my hunch is it will be like an eighty percent overlap in almost every kid who currently is being diagnosed with bipolar disorder.

Not all of them – we need to be careful – but the majority of them will get that diagnosis as a consequence of their affect dysregulation secondary to having been traumatized.

Fertile Environments for Developmental Trauma

Dr. van der Kolk: Kids, by and large, seek their cues from their parents before age twelve.

"Kids seek their cues from their parents before age twelve."

Parents are the primary affect regulator for kids. If you have very quiet, attentive parents, and even if you have quiet, attentive parents and your kids are still very disturbed, you think, "Oh, maybe this is not a trauma issue."

But if parents are very uptight – if parents themselves have been traumatized – if parents are physically abusive and out of control, then, of course, you get this developmental trauma disorder.

This is my great concern with what is happening with returning veterans: they have their own PTSD, which is bad enough as it is. But if you have PTSD yourself, then as a parent, your capacity to respond reasonably, calmly, and attentively to your kids often becomes very severely impaired.

"Intergenerational transmission of trauma occurs via the affect dysregulation of the parents who cannot be fully there for their kids."

There is a lot of work in trauma research right now about this intergenerational transmission of trauma, which doesn't occur magically through the air. It occurs via the affect dysregulation of the parents who cannot be fully there for their kids – to calm them down, to make and quietly enforce the rules, and to be there steadily.

If you are a parent who mentally disappears for days in a row, who blows up and screams in the middle of the night and cannot sleep, and who walks around the house as a trapped animal, the kids are going to pick up that fear and that becomes *their* fear…

So, that's my greatest concern about the returning veteran: What will it do to their families?

Dr. Buczynski: Absolutely, yes.

Questions and Treatments to Uncover Developmental Trauma

"Who do you feel safe with? Is there somebody in your environment who makes you scared...?"

Let's say that some of the folks on the call might be interviewing a child and they think they might be seeing something that looks to them like it could be related to developmental trauma. Are there types of questions that you would recommend that they consider asking if it's appropriate?

Dr. van der Kolk: Yes, I would ask these kinds of questions: Who do you feel safe with? Who's your favorite person? Does anybody treat you like you're really special?

Are you scared of anybody? Do you sometimes worry about somebody else?

"We do a lot of work with helping kids to regulate heart rate variability."

Is there somebody in your environment who makes you scared or is there somebody in your environment who does things to you that are difficult to talk about**?** Those are some.

Dr. Buczynski: Great. Then, for the people that are the therapists on the call, can we talk some about the kinds of treatments that you do with kids?

Dr. van der Kolk: There are a bunch of treatments for affect regulation – and you've had some people on your program like Pat Ogden and Steve Porges who really know about bottom-up regulation – learning to be still in your body.

Certainly, we do a lot of work with helping kids to regulate heart rate variability.

We do yoga with kids; we do a lot of sensory integration with children; we help kids to feel their bodies and to jump up and down – we use trampolines; we have kids wrap themselves into heavy blankets, and push against things; we have kids sit on gigantic balls.

We're trying to get to that sensory integration system in the back of their brain that gets disturbed by trauma to regulate itself.

"We're trying to get to that sensory integration system that gets disturbed by trauma to regulate itself."

One of the interesting observations we make with these kids is once they become calmer because of this bottom-up regulation, they tend to be very concrete and reactive, as long as we don't end these treatments.

As they sit on the ball and walk back and forth, or they're sitting on the swing or they toss balls back and forth, or they concentrate on their breathing, their thinking changes.

"One of the most intriguing pieces is to see how kids' capacities to think and to take a larger perspective changes."

One of the most intriguing pieces that we try to look at, if we have all the resources to do so, is to see how kids' capacities to think and to take a larger perspective changes as their physiology calms down.

I keep being impressed and astounded by the degree to which, in the general culture, people think that the only way in which you can regulate yourself is through taking drugs.

Of course, we have been exploring in a large variety of different ways how you can use other methods to regulate your physiology.

Some people who work with me do a lot of playing with kids. Some people do sensory integration techniques; some people do basketball; some people do yoga.

Some people do animal-oriented therapy where the kids learn to be calm and safe with a horse or with a dog because horses and dogs are much less unpredictable and much safer, for most people, than people are.

I heard that the VA (Veterans Administration) has recently abolished its dog program. That's very sad to hear because I was very impressed with what I heard about its effectiveness – people using dogs to protect and to feel safe and to regulate their physiology. It's grossly underestimated how much that can do.

"Some people do animal-oriented therapy where the kids learn to be calm and safe with a horse or a dog."

The big issue is how to instill internal capacities for people to feel safe and calm.

What can most contribute to that are touch, movement and breathing – any sort of regular rhythmic activity like dancing, singing, or making music like drumming.

All these activities help kids to calm down and get in tune with themselves and other people. That is the bottom-up basic regulatory system that has got to be addressed.

"The big issue is how to instill internal capacities for people to feel safe and calm."

Traumatized kids tend to get frozen and also tend to lose their sense of rhythm with other people – their sense of ease and how their bodies interact with other people.

We see this in the theater programs that we had in the Boston University School, where we have this wonderful theater program that helps kids to write their own plays and act in different roles – all very, very useful for treatment of trauma.

But what is striking is that the traumatized kids tended to be frozen, upset, and easily hyperaroused.

They needed a lot of extra coaching on how to fit into a role and to move into a role different from their own – where they could learn what it feels like to be different on a physical level than in their habitual way of organizing and orienting themselves toward the world.

"We have this wonderful theater program that helps kids to write their own plays and act in different roles."

Dr. Buczynski: Was the theater program successful…?

Dr. van der Kolk: It was quite successful.

The sad part about the theater program was that it was a research program and when the research money ran out, we couldn't raise the money to make it a regular clinical program.

Theater is expensive. But I know all over the country people are doing theater and music with kids – these are very nice ways of helping traumatized kids to regulate themselves.

Regulating Heart Rate Variability

Dr. Buczynski: You said something earlier that I just want to get back to. We've talked about this on other calls throughout other series, but I don't think this is enough for everyone on the call to understand what you mean.

You talked about heart rate variability – can we talk about that and why that matters, how that is measured, and what we're wanting from that?

"We can measure being out of control through heart rate variability."

Dr. van der Kolk: Heart rate variability is really a very important issue. It's interesting to me that people have concentrated on cortisol – on stress hormones, but I think a much *better* measure of being out of control – out of whack and physiologically disoriented – is this measure called heart rate variability.

What heart rate variability measures is the degree to which your heart rate corresponds to your breathing.

If you have good heart rate variability, your heart rate speeds up every time you take a breath in and slows down every time you take a breath out.

If you're a well-regulated person, that is a measure of your brainstem-integrated functions.

"If you're a well-regulated person, you heart rate variability goes slowly up and slowly down as your breathe in slowly and quite deeply."

If you're a well-regulated person, your heart rate variability goes slowly up and slowly down as you breathe in slowly and quite deeply – that is what people do when they're well put-together.

When you become agitated, your heart rate and breathing speed up. If you're *chronically* agitated, these two get out of sync with each other.

What you see in traumatized people, in general, is that they lose what is called "cardiac coherence:" breathing becomes very rapid and shallow and their heart rate has an independent existence.

"If you have poor heart rate variability, you tend to overreact to stress."

A large body of research has shown that if you have bad heart rate variability, it affects the regulation of your mind going up into your brainstem and the regulation of your body going down.

People who have bad heart rate variability have an increased chance to develop heart disease and a number of chronic illnesses – even as far as including cancer.

If you have poor heart rate variability, you also tend to overreact to stress in your mind or not react at all – so you don't react appropriately to stress.

"Yoga changes heart rate variability for the better."

The issue is that you need to regulate your heart rate variability.

When we finally got to understand that, we started to get into yoga and we developed a very large yoga program – in part because we thought, and eventually proved, that yoga does change heart rate variability for the better.

In some ways, we got diverted a little bit, at this point, because there is a much easier way to change your heart rate variability than yoga – although I'm a great fan of yoga and would highly recommend it to anybody who has the flexibility, any sort of flexibility, to do it. It's a very, very good treatment.

We've studied yoga as a treatment for PTSD and chronic PTSD and have come up with very good results – as good as any drug we have studied.

But a quicker way to regulate heart rate variability is to buy an instrument called *Mwave* from an organization…in California – they do not pay me for these advertisements…

"*My Calm Beat* can regulate your breathing and your heart."

Dr. Buczynski: I must stop you for a minute. Are you a shareholder in any way?

Dr. van der Kolk: No – I'm nothing like that – I'm a poor guy! You can buy this or you can download some apps on your iPhone or Android.

There is one called *My Calm Beat*, in which you can learn to regulate your breathing and your heart. That will make you calm and give you better affect regulation.

That's the bottom-up regulation – it's about rhythms, breathing and touch.

Of course, nobody is exploring touch because touch is anathema in psychiatric culture. You can't really get better from trauma unless it feels safe and comforting to be touched – to touch and be touched.

Dr. Buczynski: Yes. I think what you just said is very important and presents a problem for us in our profession: you can't get better from trauma if you don't feel safe being touched.

We treat people who don't feel safe, and we have a taboo against touching anyone.

Dr. van der Kolk: Yes, but we don't have to do it all ourselves. For example, I know a bunch of very wonderful deep-body workers here in Boston. I refer my people to them, and they'll do a much better job than I could possibly do.

Dr. Buczynski: I want to back up and get more into some of what you just said. A little bit better/faster way to help people learn to regulate their heart rate variability is through a device from Mwave. Is it a device…?

"You can't get better from trauma unless it feels safe and comforting to be touched."

Dr. van der Kolk: It is a little device, and it comes in two forms. One can be installed into your computer.

Actually, it's a lovely computer game. You put something on your earlobe that measures your profusion of blood in your earlobe, and it can pick up your heart rate and your breathing. If you do it right on the computer game, deer start jumping out of the woods, a little brook starts flowing, and a flower comes up.

Otherwise, you get a bleak landscape. So, as soon as the flower peeks up…you say, "Hey, there's a nice flower," and you want to do more of the same.

You can do this on a computer, or you can also do it on a little instrument that you put on your finger. You can just see whether it becomes green or takes on a different color.

Dr. Buczynski: How is heart rate variability measured?

Dr. van der Kolk: You measure it through a clip on people's earlobe or by putting a band around people's chest and taking their pulse.

"You measure heart rate variability by picking up people's heart rate in one way and breathing rate in another way, and seeing to what degree they're correlated."

You measure heart rate variability by picking up people's heart rate in one way and breathing rate in another way, and seeing to what degree they're correlated with each other.

The basic principle is that it needs to fluctuate deeply, and it has a certain applicational side.

If you do yoga, which you may do, what your yoga teacher tells you is, "Focus on the out breath." When you focus on the out breath, you calm down your brainstem arousal system.

"When you focus on the out breath, you calm down your brainstem arousal system."

That is an immediately important part of psychotherapy – you cannot do therapy and observe or notice yourself unless you're relatively calm.

For therapists who help themselves and their patients to focus on the out breath until they become calm, that might actually promote people getting into a mindful state.

I bet you've talked on your program about mindfulness – there is no therapy without mindfulness.

Mindfulness is not an end in and of itself; mindfulness is the starting point from which you can start doing psychotherapy. It is *sine qua non*.

Dr. Buczynski: Yes. I would say that mindfulness is the best brain-enhancement tool that we have.

"There is no therapy without mindfulness."

Dr. van der Kolk: I see it more as a necessary state in order to begin your life.

Dr. Buczynski: Yes, but some of us aren't naturally in that state… there has to be some training – brain training – that we can do to learn how to *get* to that state, or even to learn what that state is *like*.

Dr. van der Kolk: Right. It is a *sine qua non*. All growth occurs because you are in a state of mindfulness in which you can start moving things around. Without mindfulness, there is no growth, is there?

How Cumulative Trauma Affects Adult Symptoms

Dr. Buczynski: You've been part of some recent studies that have looked at cumulative trauma and how it affects symptoms in adults. Can we talk a little bit about some of those studies?

Dr. van der Kolk: Yes – there are a lot of studies. We have been looking at it for *years* now.

Basically, what we come up with is that psychologists still think about trauma as being something that affects your thinking and your feelings right here in your little prefrontal sliver.

What the evidence clearly shows is that trauma is about an organism that is scared – an organism that is frightened. It is a *body* that is frightened.

"Trauma is about an organism that is scared."

Trauma affects every system in one's organism. It affects your immune system. It affects your heart rate. It affects your bowels. Every system in your body becomes a traumatized system, basically.

Since the mind is in the body and all these systems are part of a unit, you cannot separate one from the other.

Dr. Buczynski: You worked on an earlier study that involved the *DSM*'s PTSD field trial. Could you discuss some of the findings of that study?

Dr. van der Kolk: The big finding there was that adults with childhood trauma had a very different constellation; they did, by and large, have PTSD – but that was the least of their problems.

"A big problem for adults with childhood trauma is their self-loathing, self-hatred, self-disgust..."

The biggest problem was that they had problems with self-regulation.

A big problem for adults with childhood trauma is their self-loathing, self-hatred, self-disgust, being terrified of other people, being terrified of intimacy, and not being able to negotiate intimate relationships.

The body showed up, very clearly, with a lot of cardiac problems, bowel problems, digestive problems, reproductive problems, pain problems…

"In the *DSM5* there will be a self-injury syndrome to identify *disembodied and disengaged from the environment*."

They had attentional difficulties, suicidality, and self-injury.

In the *DSM5*, again, there will be a self-injury syndrome that is not attached to anything and it's going to identify *disembodied and disengaged from the environment*.

Our research – and other people's research also – shows that you don't become a self-mutilator unless you get traumatized or are extremely neglected – actually, it's even more neglect than active abuse with most trauma patients.

These are the self-regulatory acts that people engage in.

"When you're a child and you've been traumatized, that very often goes together with neglect."

Dr. Buczynski: Do you see more people who have suffered from trauma or neglect?

Dr. van der Kolk: Oh, let's see – that's a *very* good question. It's a very important question, too, because as long as you're dealing with trauma, you're sort of lucky.

If you're dealing with trauma, it is about a specific undigested event, and we're pretty good at dealing with undigested events. That's like our research with EMDR – it usually takes care of…one particular memory that sticks in your core.

In the end, neglect is the big issue. When you're a child and you've been traumatized, that very often goes together with neglect.

"In the end, the issue of attachment is a much larger issue for our population than the issue of specific traumatic events."

For example, Marylene Cloitre, a colleague of mine who is now at Stanford, did a wonderful piece of research where she looked at pure PTSD symptoms and she looked at the complex PTSD (DESNOS) symptoms like PTSD versus concentration, affect regulation and intimate personal relationships.

She found and was able to distinguish very nicely that trauma causes nightmares, flashbacks and hyperarousal; neglect causes *all* the other problems.

In the end, the issue of attachment is a much larger issue for our population than the issue of specific traumatic events.

Treatments for Neglect

Dr. Buczynski: What kind of treatments work well with kids that have suffered more from neglect?

Dr. van der Kolk: That is a big question, and if I pretended I had the answer, I would overstate my case.

We don't know. What I use and I feel good about is neurofeedback.

"Psychiatrists and psychologists need a lot of teaching, experimentation, and research on what helps with neglected kids."

The people I've treated for prolonged neglect tend to respond to neurofeedback, and they tend to become calmer, more focused, and more mindful.

My colleague, Lisa Porter, at our clinic, is using sensory integration scales and more traditional occupational therapy techniques with these kids. Occupational therapists are much better at that than we are.

"Research having to do with touch and calming down attentional systems in the brain would be useful."

Psychiatrists and psychologists are, at this point, poorly equipped to deal with neglect and we need a lot of teaching, experimentation, and research on what really helps with neglected kids.

Dr. Buczynski: Who is doing some research that you think is interesting?

Dr. van der Kolk: I don't know of anybody doing this research because it doesn't exist.

Dr. Buczynski: What directions do you think might be fruitful?

Dr. van der Kolk: Research having to do with touch and having to do with calming down attentional systems in the brain would be useful.

The Integration of Yoga and Meditation

Dr. Buczynski: What about the integration of yoga and meditation? Can you tell us more about that? I'm going to just move on to get us a little more specific about involving those kinds of treatments in our work.

Dr. van der Kolk: It's interesting that the issue of meditation and mindfulness has taken off and has become a real discipline.

"Mindfulness meditation changes the brain and changes the areas of the brain that are most affected by trauma."

The heroes in that are first of all Jon Kabat-Zinn, Herbert Benson, and the Dalai Lama, who was intrigued enough with neuroscience that it was the "big dialogue" and then there was funding.

The research shows that meditation – mindfulness meditation – changes the brain and changes the areas of the brain that are most affected by trauma.

So, it's key that mindfulness meditation-type practices are very good for traumatized people.

"The past is the past - but trauma is about the residues of the past in your current system."

The downside is that, in practice, the better off you are, the more composed you are and the easier it is to meditate.

If you're a very frightened, traumatized person, trying to do meditation is likely to drive you nuts. People think about trauma as something that was out there and something from the past that comes into *you* – that is a fundamental misunderstanding.

Trauma is about the residues that are left inside of you. Trauma is about having physical sensations, emotions, and feelings that are happening right now that don't belong here.

The past is the past – but trauma is about the residues of the past in your current system.

"The moment you start allowing yourself to become calm, the toxins of the past will start coming up."

Traumatized people try *not* to feel those things – by drinking, by running, by numbing themselves out.

The moment you start allowing yourself to become calm, the toxins of the past will start coming up. So it's very easy to become overwhelmed by what comes up as you do mindfulness meditation.

"Why do we do yoga with traumatized people instead of doing meditation?"

Jon Kabat-Zinn taught me this – I was very surprised by it because it sounded so intense to me, but he said, "I think it is malpractice to do meditation without doing yoga with traumatized people."

Now, why do we do yoga with traumatized people instead of doing meditation?

When you do yoga, you can concentrate your mind on touching that toe or keeping your breathing going while you have one foot in the air.

In some ways, yoga organizes your attentional system into very specific movements and postures and keeps you away from the free-floating (residue) that comes up when you do meditation.

So, yoga is a much easier way of becoming mindful than meditation is – and they probably have similar effects.

The benefit from yoga over meditation is that, for one, yoga very specifically does focus on breathing, and by focusing on breathing, which many yoga teachers tend to neglect, you can train people to develop good heart rate variability.

"By focusing on breathing, you can train people to develop good heart rate variability."

In our study of yoga in PTSD, we found that people develop better heart rate variability, which means that their overall capacity to become calm increases.

But equally – if not more – important is that the triggers for your trauma are not primarily outside of oneself.

"The triggers are more often interoceptive triggers - feelings that you have inside of your body."

Most people like to talk about, "Oh, that horrible person there / the terrible car out there / the firecrackers caused me to feel this way."

But the triggers are more often interoceptive triggers – feelings that you have inside of your body.

For example, if somebody touches you or if you start having sexual feelings or you start having sensitizations, that becomes a reminder of your trauma and you start going nuts!

The big benefit of yoga is that you learn to breathe yourself into body positions that are potentially very triggering, but by having the voice of your yoga teacher and having that deep attention to trying to breathe while you do the posture, you can detoxify that particular interoceptive awareness into a piece of safety.

Now, maybe, it becomes safe to take a deep breath.

"By trying to breathe while you do the posture, you can detoxify that particular interocpetive awareness into a piece of safety."

Dr. Buczynski: I would like to ask you to repeat that because I think you just captured something there about the benefit of yoga…

Dr. van der Kolk: With yoga, you can begin to pay attention to parts of your body that are internal triggers for you to go into the traumatized state.

For example, the most flagrant example is doing the "happy baby posture."

People, who have been sexually abused and hear this, say, "Oh, no. That's impossible. The happy baby posture is a posture in which you lie on the floor on your back, you put your legs straight up in the air, you hold your toes with your hands and you spread your legs as wide as you can.

It doesn't take a lot of imagination to understand that this might be hard if you have a sexual abuse history – and certainly, if you have a sexual abuse history, you shouldn't start off your yoga practice by doing the "happy baby pose."

You need to very slowly – and that is what our trauma program does with activity – very slowly educate, help, and guide people into ever-more-complex areas of their internal worlds and to make them tolerable.

"You need to very slowly educate, help, and guide people into ever-more-complex areas of their internal worlds."

What keeps coming up is that when traumatized people start doing yoga, they often encounter contrary sensations and feelings in their bodies that are terrifying.

That's where the sound of the voice of the yoga teacher becomes extraordinarily important – Stephen Porges probably talked in this program about the power of people's voices.

The sound of voice becomes very important to help people regulate their arousal.

Then there's the power of breath at this point – you hear the yoga teacher talk about focusing your breath, "Notice your out breath. See what happens. Slow it down."

So, you get an organism that learns how to tolerate feeling those sensations. Once that sensation is no longer a trigger – once that part of your body becomes a safe part – you're liberated. It's over!

"The sound of voice becomes very important to help people regulate their arousal."

This is an alternative to telling the story – and as a therapist you know that oftentimes telling the story is just that – it's telling the story, but it doesn't make the trauma go away.

But once the sensation becomes a safe sensation, the trauma is gone.

"Once a sensation is no longer a trigger - once that part of your body becomes a safe part - you're liberated."

Dr. Buczynski: That's very interesting. I still keep coming back to the question we discussed before about neglect and how we don't really know how to treat neglect.

Do we know much about any impact of mindfulness or yoga on people who have suffered neglect?

Dr. van der Kolk: I don't know. I honestly don't know. It's a great question.

A large number of my patients – most of my severe patients – have a history of abuse and neglect. I get most of my patients to have a yoga practice, and they get better.

To what degree their trauma or to what degree their neglect gets better, I would be hard-pressed to know. But I measure the trauma because it's easier to measure.

This is what we know about what neglect does to people: it makes people feel invisible.

Neglected people tend to not have much motivation, much excitement, or much pleasure, including pleasure in connecting with others.

"All the systems of connection and pleasure flow out of your experiences as a kid - if you didn't have any of that, it's often lacking in adult life."

All the systems of connection and pleasure with other people are the outflow of the pleasure you expected as a kid with your caregivers, and if you didn't have any of that as a kid, it's often lacking in adult life.

I don't know if you have had Vince Felitti on your show.

Dr. Buczynski: Yes, we have.

Dr. van der Kolk: Vince also talks about these long-term effects of neglect on the psyche and the body.

Dr. Buczynski: I'm so sorry, but we have to stop; this is over already. It's amazing that the hour went by *so* quickly, and we have just scratched the surface.

Future Issues Related to Trauma

Let me ask you one more question: what's next for you or what do you think are the most fruitful areas to begin studying?

"One very large area of exploration is to bring our knowledge about rhythms and attachments to bear on therapeutic practices."

Dr. van der Kolk: It's a great question and I'm glad you're asking me that.

I think the most important issue that is hard for psychologists and social workers to integrate (into their work), is that we have bodies.

We have traumatized bodies, and we have rhythms and we are rhythmical creatures who rhythmically interact with other people.

One very large area of exploration is to bring our knowledge about rhythms and attachments to bear on therapeutic practices – and that involves movement and doing. That is one area.

"We find neurofeedback an extraordinarily effective way of changing attentional and regulatory systems."

My biggest passion – and I'm doing a whole lot of this already – is how the brain gets changed by the early trauma and how certain parts of the brain become much less attentive and have major problems in focusing attention.

We've been studying neurofeedback for the past five years, and we find neurofeedback an extraordinarily effective way of changing these attentional and regulatory systems.

Basically, this consists of people playing computer games with their own brainwaves. We put electrodes in people's brains; we can see it on the computer screens.

"We have people play computer games to reinforce patterns of connectivity in the brain."

We have people play computer games to reinforce patterns of connectivity in the brain and those change arousal and attentional systems.

We've developed the technology to measure what is wrong in the brain and we know a lot about that.

The issue is: Can we now develop the technology to repair the brain in some ways? Certainly, we can to some degree repair the brain by experience; our brain is an experience-dependent brain that can rewire itself – we have a neuroplastic brain.

"Our brain is an experience-dependent brain that can rewire itself."

Experience can do it; drugs can help – but not very much because drugs modulate, but do not change the brain. Experience and a whole bunch of different experiences can do this.

Our neurofeedback research shows that we can actually change the brain by reinforcing certain patterns of connectivity and inhibiting others.

I'm convinced that once MIT or Cal Tech or one of the great neuroscience centers in the country gets their hands on this, it will become a gigantic area of change and growth. But, at this point, they're not there yet.

Dr. Buczynski: You think that will come through the neurofeedback…

Dr. van der Kolk: They'll figure it out. It's so blatant; these brain changes are so obvious.

"...transcranial magnetic stimulation explores how we can change how the brain engages with the environment."

I hear about all kinds of different, early experimentations – with transcranial magnetic stimulation – people are exploring how we can change how the brain engages with the environment.

This is going to be a very big deal; whether our particular form of neurofeedback will figure in that, I'm not sure at all about that.

But we will learn how to change…I have no doubt about that, and "we" means mankind – not me!

Dr. Buczynski: Yes. Bessel, thank you so much for your time tonight. It's very important to all of the thousands of people on this webinar to hear your ideas and to stay up with what you're thinking and studying so actively.

It's so important to be checking in frequently with you to find out what your latest thoughts are.

I just also want to say thank you for all of your work – all of the times you have studied this, and even when you're not being appreciated for it, thank you for hanging in there and doing it.

Dr. van der Kolk: Thank you. It's a pleasure.

Dr. Buczynski: Take good care.

TalkBack Segment with Joan Borysenko, PhD and Ron Siegel, PsyD

Dr. Buczynski: Let's start with what stood out to you most on my webinar with Bessel tonight, and we'll start with you, Joan.

Dr. Borysenko: What really struck me, as a mother and a person who's been a working mother, was what he had to say about children.

"I was shocked to understand that there *was* no research on neglect."

I was really shocked to understand that there *was* no research on neglect. That may be because it's very difficult to quantify what neglect is, but I think, my goodness, our children are our greatest resource.

I was fascinated by the way that he broke down trauma into three different domains – acute trauma, domestic abuse and childhood trauma.

I, like van der Kolk, have been extremely interested in the work of Vincent Felitti and Robert Anda on the ACE Studies, understanding that, in fact, childhood neglect, abuse and trauma of all different sorts affects these kids for life.

The other thing that I found absolutely fascinating was to understand how the three aspects of childhood trauma actually appear.

First would be in the lack of ability to focus attention. We practically have a raging epidemic of ADD and that always brings up the question: Should kids be medicated or should they not be medicated?

These kids also have a problem with affect regulation – and I will come back to that because it speaks to medication very clearly…

"Inability to focus affects relationships."

Inability to focus also affects relationships. If you can't focus attention, you can't regulate your affect and you can't have good relationships – you don't know who is safe and you have shut your brain off. What does that say for our society going forward?

As a working mother, I was always concerned when I hired a babysitter. How much attention were the kids getting? Were they being neglected? Who *are* the people we hire to care for our children?

I just want to say to all you working mothers out there: I think the love toward your own children – being with them and solidly present – mitigates against a lot of what we worry about.

"So many physicians who do research are paid by drug companies to do research under their aegis."

But I want to finish this overview of what really struck me with what happens to kids who get diagnosed with affect regulation. If the trauma is missed – if people don't realize it's due to trauma, they might get the diagnosis *du jour* of bipolar disorder.

I was fascinated by the fact that we didn't see bipolar disorder before the early twenties; now it's getting diagnosed earlier and earlier because drug companies want to sell their drugs for it to a larger population.

Then he brought up – and we all have to be so aware of this –that so many physicians who do research are in fact paid by drug companies to do research under their aegis.

A very big article in the December 2012 *Scientific American* showed that "getting in bed" between researchers and drug companies makes for very bad research and how overmedication and medicines can be harmful.

"'We have to do better for our children' - as teachers, as therapists, as parents."

Just reading that made me think, "We have to do better for our children" – as teachers, as therapists, as parents.

What goes on with our kids sets them up for their whole life, and that is something that I really think Bessel does a very, very good job with.

Dr. Buczynski: How about you, Ron – what stood out to you?

Dr. Siegel: Pretty much the same thing. I was listening with a little trepidation thinking, "Oh, my god – that's exactly my list of what stood out to me."

But I'll mention them from a slightly different angle, particularly this issue of complex trauma and how the field has struggled with it.

"When people have had decent attachment relationships - they have a kind of inoculation against the effects of simple trauma."

As Bessel and many of the other folks have said, complex trauma is really different – the effects of having either neglect or repeated traumatic events are really quite different than what we see with somebody who has had a single event, such as the child who has been bitten by the dog or the adult who was in the near-fatal plane crash.

It's important to appreciate the differences and to appreciate how, in our clinical populations, particularly in our chronic clinical populations, how the folks with complex trauma can be the most difficult.

Very often neglect plays a big role in that, as we saw in Ruth Lanius's presentation. When people have had a good enough background – they've had decent attachment relationships – they have a kind of inoculation against the effects of simple trauma.

They're able to come back to life and respond to it – but not so with complex trauma.

Also, I thought Bessel did a wonderful job of outlining the effects on attention, affect regulation, and relationships that Joan just mentioned.

"It's very important for us, as clinicians, to think through diagnostically what is happening here."

There's one more thing that Bessel pointed out on this topic and my experience is consistent with his – even though the attentional difficulties for the kids who are having trouble paying attention at school may be trauma-related, that doesn't mean the stimulant medicines may not help them to pay attention better. They don't argue for it being diagnostically a genetically caused ADHD problem.

But they still could help the kids pay attention. In community mental health, it's a lot easier to get a kid to pay attention in the classroom with stimulant medication than unraveling all of the traumatic influences in their lives. But that is not a reason not to also try to unravel the traumatic influences.

In the case of the antipsychotics – and I will make this short – the effects are more problematic. What we're starting to do, as he pointed out, is *kill* the whole motivational system – *kill* the whole engagement system.

"Misdiagnosis becomes much more pernicious in terms of the effects on the kids."

So there, the misdiagnosis becomes much more pernicious in terms of the effects on the kids.

That Bessel is raising all of these issues is *very* important for our clinical work.

How to Teach Self-Regulation When on Medication

Dr. Buczynski: Let's stay with this issue of having children on antipsychotic drugs.

Bessel did an excellent job of raising those issues and the two of you have both done a great job of recapping that.

"With a child who's on any kind of medication, learning is impacted."

Joan, continuing on that idea, picking up where Ron left off and the effect that the antipsychotics have, is there a way to teach children how to self-regulate when they *are* on medication?

Dr. Borysenko: Yes, there are ways to teach them. One of the things about medication is, from time to time, it can be *good,* as Ron was just saying.

Maybe medication helps somebody focus so they can learn. But I am not talking here about the antipsychotic treatment for ADD. With a child who's on any kind of medication, clearly the learning is impacted.

But I want to give you an anecdote here that first convinced me that, no matter how children are medicated, they can actually be reached.

This is not about a client of mine – I don't work with children and I never have – I work with adults. However, this was a boy in fifth grade. He was a friend of one of my sons, and he came to live with us for a couple of months.

"'We had the most interesting health class. Somebody came and did a guided imagery with us.'"

He was on several medications. Clearly this was a kid with terrible problems with attention and affect regulation and relationships. He was quite a handful.

He came home one day and he said – now this was when he was in fifth grade, "We had the most interesting health class. Somebody came and did a guided imagery with us."

I was shocked and I said, "Really? You could focus on that?" I'm going to change his name – and I said, "Well, Al, what was it like?"

He said, "I went to this place and it was so calm inside. I had this huge insight; I thought of my baby brother, who I loved so much, and it occurred to me that God is actually *love*."

I was thoroughly amazed that in a child who had as many problems as he did and was on as many medications as he was that he had such a glorious insight. It was a short guided meditation and he was able to do it.

"It's so important that we don't immediately say, 'They can't do this... They're on too many meds.'"

Then he asked me, "You meditate – I know you meditate because you always tell us to be quiet and not to bother you when you do that. Can I come with you? Can I learn this?"

I thought – and I was a teacher of meditation at the time – "How can I possibly teach this child to meditate? How can he do this?"

And do you know? He actually took to it very, very well. Not in long periods, but for two to three minutes – he would do that and it would always bring him a sense of calm.

It's so important, with either adults or children, that we don't immediately say, "They can't do this – somebody like that can't concentrate. They're on too many meds."

We have to try and see – and there are many different techniques that we can use. For him, guided imagery – and it was a simple form – a counting meditation that I did with him, and it worked very, very well.

"For anyone who has trouble concentrating or who has a trauma, focusing on yoga positions and breathing can be a tremendous help."

By the way, he also liked yoga; I used to run a yoga class in my home and the boys would always come and be part of it.

For anyone who has trouble concentrating or who has a trauma and you don't want them to go to deepened meditation, focusing on yoga positions and breathing can be a tremendous help.

Once again, medication doesn't block one's entire ability to do that – one can really benefit.

Dr. Buczynski: Thanks.

From Self-Loathing to Improved Self-Image

Ron, let's go off of medication for a while and talk about developmentally traumatized people. We talked about that two weeks ago with Ruth Lanius, but it came up again tonight.

Many times, developmentally traumatized people can have a high degree of self-loathing. How can practitioners go about helping to work with them to perhaps improve their self-image?

Dr. Siegel: This is a critical issue. All of the folks that I've ever worked with, particularly who have suffered from complex trauma, have had many experiences in which the world was either profoundly disappointing or injurious to them and they wind up taking that in and assuming that there's something terribly wrong with them.

If you're growing up in a household and your parents are treating you as though you're bad in some way, you have two options. One is to think, "Oh, my god – there's something really wrong with my parents" – and that is terrifying because, as a child, we rely so utterly on our folks.

The other option is to think, "They must be right and there's something terribly wrong with me." That is almost always the conclusion people come to.

"It's useful to differentiate between trying to develop self-compassion and trying to develop self-esteem."

So how do we deal with that? It's useful to differentiate between trying to develop self-compassion and trying to develop self-esteem.

Self-esteem, which is what we tend to think about most in our culture, involves telling ourselves that we are really okay competitively, in some sense. There's the joke about Lake Wobegon where all the children are above average.

Self-esteem is always comparative in some way: "Okay, so I'm not so good in one regard, but I'm really good at basketball / I'm excellent at math…"

A very good approach is developing self-compassion – and Peter Levine alluded to this in his talk when he discussed the various ways in which one can hold the body when doing body work.

"A very good approach is developing self-compassion - holding the hand over the heart and doing a loving-kindness practice."

My friends, Chris Germer and Kristin Neff, who do a lot of teaching about self-compassion, do this very simple technique of holding the hand over the heart and then doing some kind of loving-kindness practice.

In the Buddhist tradition, these are called metta practices, and they often involve repeating phrases silently to oneself. This is one: "May I be safe – May I be healthy – May I live with ease – May I be happy – May I be peaceful – May I be free from suffering."

"Mindfulness, as opposed to self-absorption, is a very nice antidote to posttraumatic self-torment and self-degradation."

The particular content isn't critical; what's critical is generating this kind of loving-holding that the pediatrician and analyst D.W. Winnicott used to talk about, which is the way in which the therapist holds the patient emotionally, or a parent holds the child emotionally.

From this, we start to transform – in the self-compassion literature it's called the "holy trinity of self-criticism, self-isolation and self-absorption."

We've been telling ourselves bad things about ourselves – we're totally focused on "me" *because* "I am so bad" and we're isolated from other people *because* of this kind of focus.

The alternative is developing this kind of kindness or self-compassion, which means noticing our common humanity – that whatever we are involved in, this suffering is also the suffering of other human beings: "I am not really isolated by the fact that I'm in pain."

"We start to transform, which means noticing our common humanity."

Finally, mindfulness as opposed to self-absorption brings us to: "Let me simply see these phenomena arising as impersonal events rather than all about me."

It is a whole package. But those kinds of approaches are a very nice antidote to the kind of posttraumatic self-torment and self-degradation that we see so often.

Dr. Buczynski: Thanks.

Heart Rate Variability and Self-Regulation

Joan, moving on, Bessel talked about heart rate variability. What types of activities can get patients more aware of their heart rate variability as a way of self-regulating?

"Heart rate variability is the interval between heartbeats."

Dr. Borysenko: First of all, Ruth, let me start by defining heart rate variability because there's so much interest in it now.

It is really the interval between heartbeats. There are a lot of fine points to it, but the major point is this: How long is it before the heart beats again after it has already had a beat?

For example, let's say your heart beats four times in ten seconds; in the next ten seconds maybe it's going to beat five times or three times…It is variable.

"Heart rate variability has to do with our adaptation to stress and our ability to discharge stress."

This involves the whole autonomic system and the balance of the autonomic system. Based on the work of Stephen Porges, how the vagus works also fits into heart rate variability.

Years ago, a man by the name of Irving Dardik, who was a physician for the US Olympic team, started to notice that the athletes who were doing really well had the greatest heart rate variability.

Then he started to notice, just in his practice, that people with low heart rate variability were more prone to chronic diseases, including heart disease, diabetes, and cancer.

That work has really proved true. It turns out that autonomic flexibility in our nervous system is really important and it shows up in many ways. One of those ways happens to be heart rate variability.

Heart rate variability has to do with our adaptation to life – our adaptation to stress and our ability to discharge stress.

"If you help them increase heart rate variability - teach them the skills to do that - they're less likely to relapse."

Heart rate variability is correlated now with all *kinds* of conditions. For example, it predicts relapse in people who are addicts. That's what makes me think that it's very important in treating trauma.

So many people who have childhood backgrounds of trauma and others who have single traumas later in life – maybe they were raped…maybe they have been in a war zone – will begin to use a lot of drugs to deaden the pain.

If you help them increase heart rate variability – teach them the skills to do that – they're less likely to relapse after getting those skills and after being treated for their trauma and their addiction.

A way that Bessel talked about increasing heart rate variability is through yoga. It's the breathing component of yoga that really does that.

Yoga breathing has a very old history; it is thousands of years old. These old yogis were great psycho-physiologists and they knew what they were doing.

"Anything that increases the length of the exhalation, like most yoga breaths do, will increase heart rate variability."

You had on the New Brain Science Series a really fantastic young woman whose name was Kelly McGonigal, and she also talked about heart rate variability.

She trains people to increase their heart rate variability with simple, focused, mindful breathing exercises – just breathing in and *knowing* that you are breathing in; breathing out and *knowing* that you are breathing out.

I find that it helps to count back. I like people to count from four – four on one in-breath and then four on the out-breath, three on each in and out-breath, two, then one, and start over at four.

That gives a very concrete focus that even people who have problems with attention can usually follow. That works – and anything that increases the length of the exhalation, like most yoga breaths do, will increase heart rate variability.

Another thing that increases it tremendously is exercise, particularly exercise that is done with intervals.

"There are a number of those little biofeedback trainers, and all of them work very nicely in training heart rate variability."

When I heard Bessel talk about heart math and the coherence between your heartbeat and your breathing rate – of course that is what it's always about – he talked about the little biofeedback machine called the Mwave.

There are a number of those little biofeedback trainers, and all of them work very nicely in terms of training heart rate variability. It's great for all of us to do.

One last comment: even if you have had something like a heart attack, increased heart rate variability decreases the likelihood of another heart attack, so we all need it – for our physical and mental health.

How to Set the Stage for Mindfulness Meditation

Dr. Buczynski: To wrap up, Ron, traumatized people may not be ready for meditation at the beginning. I would like to have you talk a little bit about how to set the stage for introducing mindfulness meditation perhaps later on.

Dr. Siegel: Bessel did a very nice job of this when he was discussing yoga with traumatized people and discussing Jon Kabat-Zinn's remark that to just launch into meditation practice without first doing a preliminary such as yoga practice, is a bad idea.

It is useful to step back and see meditation practices as representing a very wide array of different interventions, each one designed to do something differently.

I remember when we asked His Holiness the Dalai Lama when he came to Harvard Medical School for a conference with therapists to lead 1100 psychotherapists in a meditation, he laughed!

He thought that was a hilarious idea. How could there be one single practice for so many different people, given all of the different ways that the mind can create suffering?

When we talk about meditation, we're really talking about this very wide array of practices.

"It is useful to step back and see meditation practices as representing a very wide array of different interventions."

"Practices that are most tricky and most difficult for folks who have suffered trauma are those that leave them alone with their mind."

Those practices that are most tricky and most difficult for folks who have suffered trauma are those that leave them alone, at sea, with their mind. That tends to soften the repression barrier so that contents that have been pushed out of awareness can come flooding back into awareness.

The worst of these is probably, "Go sit quietly without external stimulation and follow your breath for a long period of time."

Sooner or later, virtually everything we've ever tried to push out of awareness is going to flood back in, and it's going to become very difficult.

So, for traumatized folks, we want to go very much in the opposite direction – we want to go in the direction of having the teacher or the therapist be very present.

As the poet Anne Lamott once quipped, "My mind is a very dangerous neighborhood; I try not to go there alone."

"For those who are traumatized, the mind is a *very* dangerous neighborhood."

For those who are traumatized, the mind is a *very* dangerous neighborhood and we shouldn't send them there alone – we should go there with them.

Bessel talked very eloquently about how getting into a yoga posture and having the yoga teacher, with proper prosody – talking in a reassuring, loving way about this being safe – *makes* it safe.

We want to have a lot of structure. We want to have the participation of the therapist or the yoga teacher or meditation teacher involved.

Yoga is wonderful because of the focus on the body; it gives it some structure – we're paying attention to this sensation or to that sensation, rather than whatever happens to come to mind.

"Yoga is wonderful because of the focus on the body."

You can also use various kinds of guided imagery, as Joan was suggesting, that the young man that she worked with experienced.

With guided imagery, of course, you have to be aware that different people are going to have different associations.

Here's the rule of thumb: use an external focus – something that has a lot of instructor participation, or activities that have a lot of structure to them…Leaving somebody alone for long periods of time with their breath is not a good idea with traumatized folks.

Dr. Buczynski: Thank you.

"Use external focus or activities that have a lot of structure."

We need to wrap up. Next week, we'll be talking with Stephen Porges so we will continue talking about heart rate variability and its impact on and relevance to trauma and healing.

We'll also be talking a whole lot more about the vagus nerve and how that affects our body's response to traumatic events.

We'll talk about even how the nervous system evaluates risk and how to help clients feel safe.

Tonight, I'll be sending you the links to the audio and the video in about an hour, so that you can listen to it again, watch it again – whatever you would like to do.

People with Gold memberships help us to provide this material throughout the world – yes, literally throughout the world nowadays. So, thank you!

I'll see you next week when we talk with Stephen Porges. Take good care. Good night.

About The Speaker:

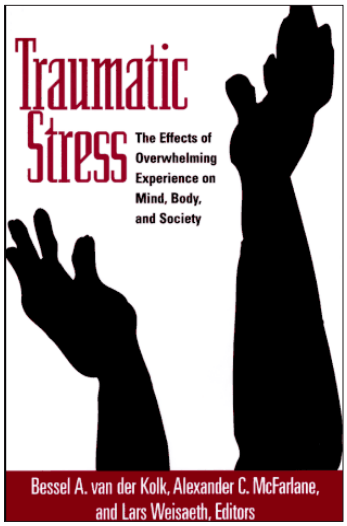
Bessel van der Kolk, MD is a neuroscientist and Professor of Psychiatry at Boston University Medical School. He is also the Medical Director of the Trauma Center where he incorporates such diverse resources as a yoga studio, theater program and neurofeedback laboratory. His research has ranged from neuroimaging and psychopharmacology to memory processes and EMDR.

He is past President of the International Society for Traumatic Stress Studies and he has taught at universities and hospitals around the world. His current research involves the effects of trauma on memory processes and brain imaging studies of PTSD.

He is author of well over a hundred scientific articles, author of *Psychological Trauma* and co-editor of *Traumatic Stress*.

Featured Books by Speaker: Bessel van der Kolk, MD

Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society



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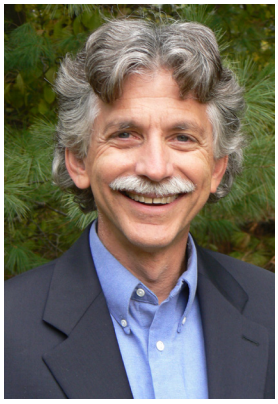
Since 1989, Ruth has combined her commitment to mind/body medicine with a savvy business model. As president of The *National Institute for the Clinical Application for Behavioral Medicine*, she's been a leader in bringing innovative training and professional development programs to thousands of health and mental health care practitioners throughout the world.

Ruth has successfully sponsored distance-learning programs, teleseminars, and annual conferences for over 20 years. Now she's expanded into the "cloud," where she's developed intelligent and thoughtfully researched webinars that continue to grow exponentially.

Joan Z. Borysenko, PhD, has been described as a respected scientist, gifted therapist, and unabashed mystic. Trained at Harvard Medical School, she was an instructor in medicine until 1988.

Currently the President of Mind/Body Health Sciences, Inc., she is an internationally known speaker and consultant in women's health and spirituality, integrative medicine and the mind/body connection. Joan also has a regular 2 to 3 page column she writes in *Prevention* every month. She is the author of nine books, including New York Times bestsellers.



Ronald D. Siegel, PsyD, is an Assistant Clinical Professor of Psychology at Harvard Medical School, where he has taught for over 20 years. He is a long time student of mindfulness meditation and serves on the Board of Directors and faculty of the Institute for Meditation and Psychotherapy.

Dr. Siegel teaches nationally about mindfulness and psychotherapy and mind/body treatment, while maintaining a private clinical practice in Lincoln, Massachusetts. He is co-editor of *Mindfulness and Psychotherapy* and co-author of *Back Sense: A Revolutionary Approach to Halting the Cycle of Chronic Back Pain*.