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### PEACE TALKS RADIO: The Neuroscience of Compassion

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Many people wonder how the Dalai Lama can stay so composed despite the human rights violations against his native Tibet. New neuroscience research may help explain the exiled Tibetan leader's compassion for all people. Meditation may increase a person's ability to feel empathy and kindness for others. On this edition of *Peace Talks Radio*, we explore brain research suggesting that compassion can be learned and increased with practice, similar to any skill or talent. Some researchers believe that compassion meditation may benefit depressed people or young people who struggle with aggression and violence. Suzanne Kryder hosts conversations with several guests.

Dr. Richard J. Davidson, a research professor of psychology and psychiatry and director of the W.M. Keck Laboratory for Functional Brain Imaging and Behavior and the Laboratory for Affective Neuroscience at the University of Wisconsin-Madison. His labs use a variety of technologies including functional magnetic resonance imaging or MRI to study patterns in brain function. One focus of his work is on interactions between the prefrontal cortex and the amygdala in the regulation of emotion in normal subjects, patients with anxiety disorders, and highly trained Buddhist monks.

Dr. Dan Siegel is currently an associate clinical professor of psychiatry at the UCLA School of Medicine where he is on the faculty of the Center for Culture, Brain, and Development and is Co-Director of the Mindful Awareness Research Center. Dr. Siegel is also the Executive Director of the Mindsight Institute, an educational organization that focuses on how the development of insight, compassion and empathy in individuals, families and communities can be enhanced by examining the interface of human relationships and basic biological processes. His latest book is *The Mindful Brain: Reflection and Attunement in the Cultivation of Well-Being* (2007).

Dr. Pilar Sanjuan is a research scientist at the Mind Research Network in Albuquerque. She is currently working on a study with veterans who have been diagnosed with post traumatic stress disorder (PTSD) to see if mindfulness training helps reduce the suffering associated with this diagnosis. Dr. Sanjuan and Dr. John Phillips also give Suzanne a tour of some of the equipment used to study these aspects of neuroscience.



Dr. Pilar Sanjuan



Dr. Richard Davidson



Dr. John Phillips



Dr. Dan Siegel

*"Once you do the research - where you're studying the effects on the brain of mindfulness practice - you come to the scientific fact that mindfulness practice improves the health of the brain, of our relationships with each other and improves the health of the mind. Science has shown that this is not a religious practice. This is a form of brain hygiene."*

- Dr. Dan Siegel,  
author of *The Mindful Brain: Reflection and Attunement in the Cultivation of Well-Being*

## SHOW EXCERPTS

*Peace Talks Radio Host Suzanne Kryder with Dr. Richard Davidson, University of Wisconsin - Madison*

**KRYDER:** Why is it that some people are more sensitive to threats than others?

**DAVIDSON:** Like other complicated behavioral characteristics, it's probably an interaction of both genetic contributions as well as learned, past history and current context.

**KRYDER:** Let's imagine that I perceive something threatening. Actually, I saw some cockroaches in my kitchen the other night. It was amazing how quickly I responded to that visual cue. I screamed! What does your research say about how I could regulate that response or more quickly recover from it?

**DAVIDSON:** There are parts of the brain that are very important for emotion regulation. The amygdala, for example, is modulated by parts of the prefrontal cortex. Individuals who are skilled at emotional regulation are capable of more automatically recovering from a negative event like seeing a cockroach. They can also deploy more intentional and voluntary strategies to activate these regions of the prefrontal cortex, which, in turn, will regulate activity in an area like the amygdala.

**KRYDER:** Tell us about these intentional and voluntary strategies that are helpful in regulating the brain.

**DAVIDSON:** We have investigated strategies that are derived from a number of different kinds of traditions. One is cognitive therapy. This is one of the most well validated psychological treatment strategies for depression and anxiety. Using those kinds of methods - which involve reappraising a stimulus (for example, in the case of the cockroach, saying, "Most cockroaches are not very dangerous; there's probably not very many of them; many other people have cockroaches; it's not a big deal) - that would be an example of cognitive reframing and reappraisal, to minimize the impact of that stimulus.

There are other kinds of emotion regulation strategies that we've worked with that are derived from contemplative traditions. One of the most effective is the active, intentional, voluntary cultivation of positive, emotional states, to counteract negative, emotional states. The two, most common positive states that are cultivated through these kinds of contemplative trainings are compassion and loving-kindness. There is a beginning of a research literature on these kinds of practices. The research shows these practices dramatically alter certain parts of the brain, and may help with the kind of example you gave of the cockroach. One of the things that you do in loving-kindness and compassion meditation is you extend the feelings of positive affect to all living beings, which would include a cockroach. You would be reflecting on the view that cockroaches also have a right to live. It changes your attitudinal stance, if you will, toward cockroaches.

**KRYDER:** Give our listeners some simple instructions on how to do this compassion training.

**DAVIDSON:** The trainings involve, typically, the silent repetition of a phrase like, "May you be free from suffering, may you live a life of ease." A person would silently repeat phrases of that sort directly to themselves, "May I..." It may be directed toward a loved one. It may be directed toward a person with whom one has difficulty, who pushes your buttons. It could also be directed toward all living beings, including cockroaches.

**KRYDER:** Tell us about The Center For Creating A Healthy Mind.

**DAVIDSON:** We can take responsibility for our own brains. Or brains are being shaped, wittingly or not, by the events and people around us. If we take more responsibility for cultivating positive qualities of mind, I think that we could all have a more significant impact on peacemaking in our world.

*Peace Talks Radio Host Suzanne Kryder with Dr. Daniel Siegel, UCLA*

**KRYDER:** Give us an overview about how parents' relationships with their children can have a positive effect on the child's brain development and well being.

**SIEGEL:** Whatever area of the world you study, whatever culture you're looking at, there's a common way in which parents promote the healthy development of children. That way is called, "attunement." It's the way a caregiver tunes in to the internal feelings of the child. When that attunement occurs, what we think happens is that the brain of the child which, of course, is immature, is allowed to attain a balance, equilibrium. As the child is using this connection with the attuned parent, over time, the circuits in the child's brain that are working well actually grow and develop a more independent way of being. As the child enters elementary, middle and high school, he or she has developed the circuits of the brain, from that attuned relationship that's happened over the years. They can be more independent in their capacity for balancing emotions, for connecting with other people and even for understanding themselves.

**KRYDER:** What does attunement look like? The child comes home from school and says something about their day. What does the parent do?

**SIEGEL:** If the parent is really tuned in and interested in the child's internal feelings, thoughts, hopes and dreams, that's the kind of

**OBJECT:** If the parent is really tuned in and interested in the child's internal feelings, thoughts, hopes and dreams, that's the kind of experience where the parent is seeing the mind of the child. When that happens, children thrive. If a child comes home from school and talks about the day, a parent should focus on not only what happened, but what the child felt about what happened: what were they thinking when this interaction happened to that kid or the teacher responded in this way? When a parent does that, the child actually learns its own, internal world. That's an incredible source of strength. With those sorts of interactions with a parent who's interested in the mind of the child, that parent has what's called, "mind sight." The child, too, develops this capacity to see the mind and actually have more emotional intelligence, to face life with more resilience, to be flexible and deal with stressors and actually do better, over all, in their lives.

**KRYDER:** Dr. Siegel, in your book, *The Mindful Brain*, you describe a practice that you learned on a mindfulness retreat that wasn't really mindful awareness or compassion; it was a forgiveness practice. It sounds like that could be a good practice for peacemaking. Could you give us some instructions on how to do the forgiveness practice?

**SIEGEL:** The words I'm about to give you come from my learning from Sharon Salzberg. You create a state of calm and tranquility by focusing on the breath. That's an important place to start. When you come to someone with whom you may have a challenging relationship – or even a big conflict – you focus on the person's identity (perhaps having an image of their face). When you feel ready, you can offer forgiveness to this person by saying, in your mind, "I forgive you for anything you have said or done that has caused me pain or harm." Then, in turn, you ask forgiveness from that person, in the same fashion. "Please forgive me for anything I have said or done that has caused you pain or harm." With the sharing of forgiveness, you offer wishes of loving kindness to this person with whom you have a conflict. That could be offering them the wish for happiness and a joyful heart, for health and a body that gives them energy, for safety and protection from harm and for the ease that comes with well being. When we offer these loving kindness wishes, it enriches our own sense of compassion for others, but also for ourselves. We generate self-compassion. This way, we're building circuits of compassion in the brain. It allows us to let go of automatic grudges, ways we're imprisoned by our anger at others. We can move beyond these grudges into forgiveness. That's been shown to promote our physical health, our emotional well being and the clarity of our minds.

**KRYDER:** The practices come from the Buddhist tradition. Is there any resistance that people believe they're being programmed or that researchers are proselytizing to them?

**SIEGEL:** It's an important question about the origin of these practices. In *The Mindful Brain*, what I tried to explore was the fact that every culture has a mindfulness practice and teaching. It's been around for, literally, over twenty-five hundred years in different traditions. Now, it's practiced in the East and the West. In modern times what's happened is that researchers have gotten interested in the claims that have crossed these cultures. When you do research, you've got to pick one, particular method and study it. It just happens that some of the methods that have been most studied have been from the Buddhist tradition of this insight meditation, otherwise known of as mindfulness meditation. Once you do the research, where you're studying the effects on the brain, the immune system, relationships with others, your own reports about how your mind feels – that it has more clarity and balance – you come to the scientific fact that mindfulness practice improves the health of the brain, of our relationships with each other and improves the health of the mind. That's just absolutely clear from science. Some people, who worry about their origins, do have that response. But our response is that science has shown that this is not a religious practice. This is a form of brain hygiene.

*Peace Talks Radio Host Suzanne Kryder with Dr. Pilo: Sanjuan, The Mind Research Network*

**KRYDER:** How are the mechanisms and symptoms of PTSD similar – somewhere else on the scale – strong emotions? Maybe someone doesn't have the psychopathology of PTSD, but they are sensitive to different cues.

**SANJUAN:** I've often thought that we wouldn't want to assume that, when we talk about people being emotionally reactive, more emotional, maybe people are, genetically, born with it. In some people, (if you had that bad childhood or other trauma happened to you), it turns into PTSD or substance abuse. In other people, I wonder, do those same genes turn into passion? I wonder if Gandhi had those same genes, but he didn't have the bad things that came in between. So, he took that same thing of feeling strongly, and made it into something huge and good. I think people who do have lives like that have a lot of passion for what they do. I wouldn't want to come up with a drug that would change that. I wouldn't want to come up with a drug that took away people's emotional reactivity. It would also impact artists and, who knows, maybe a lot of scientists. I wouldn't want to come up with a drug that would change somebody's genes. I have a feeling that might actually be something bad.

**KRYDER:** What about mindfulness? They say that, because the brain is plastic, changeable, the mindfulness can actually help people learn how to regulate their reaction.

**SANJUAN:** You want to be more flexible in how you respond to things. You can still respond to things with a passion, but not respond to things with the anger. Or, when you do respond with anger – you can learn to examine it and see what it is that's actually going on. When you look at anger long enough, it is usually covering up something else. I almost believe it's not a real emotion; it's the "fight-or-flight" response you have to a negative emotion. One might actually be feeling hurt; people are not paying attention to our emotions. When one thinks through the hurt, one sees that, most of the time, people try. Probably, it's only when they're in a hurry or a rush that they don't. Most of the time, they're trying to be aware of your feelings. Sometimes, when it's too much trouble, they don't pay attention. Then, one doesn't feel the anger all the time. It's the hurt that caused the anger.

For years, when I've worked with patients, one of the things you do with cognitive behavioral therapy is to take an instance when they've had a bad emotional experience, something bad happened, and you break it down with them. Almost like clockwork, people will come in with PTSD and there's anger. When I ask, "What was the emotion you felt," they reply, "anger." When you go back and look at it with them, you discover it wasn't just anger. There was something before that. There's frustration, hurt. They felt nobody cared about them. There's sadness; you've reminded them of something or somebody they've lost. It's bringing them grief, and that leads to anger.

**KRYDER:** It sounds like that process is using different parts of the brain to analyze what the amygdala is just automatically reacting to.

**SANJUAN:** If the amygdala has fear, it turns into anger.

**KRYDER:** What other part of the brain would do that analysis?

**SANJUAN:** That would be the frontal cortex. You'll be working with other parts of the brain. You'll be working with the hippocampus to remember previous times when you were hurt or insulted, putting it all together into the "whole world's against you" thing.

**KRYDER:** Part of that process of mindfulness is that we remember that we've done that analysis, and can go back and do it more quickly?

**SANJUAN:** Yes. You tell yourself that this is one of those times when you just stop and actually notice what's happening. You take yourself out of just the feeling and put yourself in the moment and you're noticing what's happening.

## WEBSITES & OTHER RESOURCES

Website: Richard Davidson / Waisman Center, University of Wisconsin-Madison

Website: Dr. Daniel Siegel

Website: Mind Research Network, Albuquerque, New Mexico

## Good Radio Shows: 2008 Episodes

Website: Mind Research Network, Albuquerque, New Mexico

Book: *The Mindful Brain: Reflection and Attunement in the Cultivation of Well-Being* by Dr. Daniel Siegel

Website: [View Full Panel Sessions with Davidson, Siegel and the Dalai Lama at 2008 Seeds of Compassion Conference](#)

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