

~ Your Brain on Meditation ~

Mingyur Rinpoche

How does meditation help change the brain positively? Many people ask me this question because I have been doing a lot of experiments and dialoguing with scientists. I am a guinea pig, a test subject.

In 2002, I went to many different universities in the USA — like the University of Wisconsin–Madison and MIT. Especially at the University of Wisconsin–Madison. They put me in a big machine called an “fMRI.” They said they wanted to know about the meditator’s brain. I had been learning meditation since I was nine years old, so they were really interested in my brain activity.

Of course I made time for it. They said they needed three days. I had to go into the fMRI and EEG, with so many different electrodes on my head. There were two test machines: one was for fMRI, which is not the normal MRI machine, and the other was for EEG.

In the morning, I went into the machine for a few hours. After lunch, they said I did not need to come back that afternoon. Why? They said there was something wrong with the machine. So I had the day off. I was very happy. Nearby there was a lake, so I walked around the lake and relaxed. They never told me the reason why.

The next day, I went back for the morning and afternoon, and again the day after. Six months later, they told me the reason. When I went, they captured images especially of what they call “gamma activity,” where different parts of the brain work together in gamma synchronization. All this activity is synchronized and works together. The number was seven or eight hundred something. Normally that is impossible. Maybe if you are totally crazy then the number becomes more than a hundred or something. Or, it means something is wrong with the machine.

They said nothing was wrong with the machine, but the gamma activity was very strong. They also tested with other long-term

meditators — not just me, but six of us altogether. We all had pretty similar results. The gamma synchronization activity was very strong. When they asked us to meditate, the synchronization became very strong and lasted for the four minutes of meditation. It continued for those four minutes. When they said to stop meditating, it would go down.

After that, I had a lot of dialogue with these wonderful scientists. I had gone to the West in 1998, and because I have a lot of interest in science, I met some scientists. At that time, I shared with them about my panic attacks. Most of them said that once you have panic attacks, it is very difficult to recover. You can only work with the symptoms, not the panic itself. It was as if there was no hope. And I told them, “Actually, no, I do not have panic attacks anymore.” But they did not believe me.

What the scientists were saying is that everybody has a baseline — happy or not happy, a little anxious, a little sad or depressed — and that that baseline is not easy to change. No matter what you do — fame, power, money, marriage, winning the lottery — happiness goes up a little bit, but after a few months it comes back down and is the same as before. Sometimes it even gets worse. This is why they said the basic thing cannot change, that you can only change the symptoms.

But then, in 2004, they came out with research results — not only from meditators, but also from testing many other people’s brains. What they discovered is neuroplasticity.

Neuroplasticity means our brain is capable of change. That means even if you were born with an unhappy baseline, you can change. There is hope. In 1998, I felt like there was no hope. But from 2004 onwards, there is hope.

Later, not only that, they discovered what they call “neuropathways,” meaning not only the structure of the brain can change, but new pathways can form, like new highways in our brains. And later they discovered neurogenesis: even gene expression in the brain can change. But the problem is that change means it can go either way, right? Positive or negative. We do not know.

Later, when I discussed this with the scientists, we found that through meditation you can change the baseline. Even if you were born unhappy, you can become happier — even when you are not meditating. Our brain changes all the time, but those changes happen without your choosing most of the time. The outer environment forces you to change. The situation forces you to change. Life's ups and downs force you to change. Even when you do not want to change, the brain will change without your choosing.

But through meditation, you can change consciously. Because you are meditating — to be aware of awareness, to connect with love and compassion, to connect with wisdom — through these ancient practices, you can change your brain positively.

What I discovered are three very interesting things. First, there is hope. Everybody can change their baseline in a positive way. Second, one of the best ways to change positively and consciously is through meditation, practicing through inner well-being. Third, that positive change is also related with the physical body. It is good for the physical body. And of course it is related with your relationships. It helps in a way, like a positive side effect. And it might help your life, also.

So everybody has the potential to change, and that positive change comes through engaging with your spiritual practice, especially meditation. And that positive change also helps your health, your life, and the people surrounding you — you can help them too. These three things for me are really interesting.

And one thing more: Why can we change that baseline? What is the reason? How can we change? Two things. One is that you can guide your own mind. When the meditators are in the fMRI and they ask us to meditate, the gamma activity goes up. When they ask us to stop, the activity goes down. There is some kind of freedom in your own mind. That is the first thing that helps.

The second is what the scientists call “unstickiness.” There is another test. They gave us something like a watch, like a matchbox, that you wear here [Mingyur Rinpoche indicates his wrist]. It produces hot water, instantly! Beep! It becomes very hot, almost unbearably hot. It becomes very hot for ten seconds, then suddenly becomes cold. We had to wear this on our wrists. This wrist is quite sensitive. Then they

said, “Ten seconds after the beep, your wrist will burn.” We had to wait ten seconds, then suddenly it became very hot for ten seconds. Then it was gone, and we waited for maybe ten seconds more.

For those who are not meditating, what happens? When they hear the first beep, for them it is like it is already burning. It is as if their wrists are burning. In the mind, there is a lot of rumination: “When will it burn? Where will the heat come? What will happen?” It is like burning. Then, when the actual heat comes, the clarity on the heat is not clear. So you do not experience the heat very clearly. It is mixed with rumination. Finally, when the heat goes away, they still feel like it is burning and are still ruminating.

But for the meditators, when they first hear the beep and wait for the heat, the brain is calm. When the heat comes, the clarity of the heat is very clear. They see the situation very clearly; they experience reality very clearly. When the heat goes away, the experience of the burning also goes away. That is what the scientists call “unstickiness.”

For example, if you have stress at the workplace, normally you bring that home, and so it continues. Even though you have left your work physically, your mind still carries it with you. Then it may affect your friends and family at home. And if something happens at home, you bring that to the workplace. Not only that, you bring things from the past, and you are expecting something might happen in the future. Then it becomes stress, depression, anxiety, and all of these things.

But when we learn our mind, unstickiness means you can more easily let go, and at the same time you can see things clearly. That is the second reason.

And I will add a third reason from my own experience, and from the tradition. When we are getting close to our true nature, when we are “coming home,” we feel more happy, more content, more joyful. That is what we call “lasting happiness.”

If you win the lottery, at the surface level you might feel happy, but at a deeper level you might feel hollow, or a sense of incompleteness. Like something is missing. Insecurity. But when you engage with your innate quality, you might feel an okayness — sometimes without

reason. You might feel like you are coming home. You might feel contentment, like something is right.

So, what is this innate quality to connect with for lasting happiness? Three things: awareness, love and compassion, and wisdom.

Maybe I will ask you one question: when you can help other people, do you feel really happy from the heart, or not? If so, raise your hand. I hope you are raising your hand in front of the screen.

Actually, yes. When I ask this question, almost 99% of the time people say that when they can really help other people, they feel really happy. At a deeper level, there is a feeling like something is right, something is fulfilled, something is meaningful. And that happiness cannot compare even with winning the lottery, at a deeper level.

When we connect with this innate quality — awareness, love and compassion, wisdom — we feel lasting happiness. And that can change the baseline. That is my idea.

I have always been interested in science, and having this dialogue and being a guinea pig, I learn a lot. And it also benefits my own practice.

Thank you.