

The Science of Stress, Resilience and Happiness

A Dialogue with Dr. Emma Seppälä and Acharya Fleet Maull

[0:00:08.5] Acharya Fleet Maull: Hi, it's Acharya Fleet Maull here for Shambhala Mountain Centre. Welcome to day three of our Science of Meditation online conference, and today is about working with emotions, meditation for resilience and stress. This is the first module for day three and we're really excited to be here with Doctor Emma Seppala from Stanford University. So welcome, Emma.

[0:00:35.1] Dr. Emma Seppälä: Thank you so much, I'm happy to be here.

[0:00:38.0] Acharya Fleet Maull: Great to be here with you today. So I want to share with our audience a little bit about you and your work and then we'll jump right into the conversation. So Doctor Seppala is science director of the Stanford University Compassion and Altruism research and education centre, or the Centre of Compassion and Altruism Research and Education. Author of The Happiness Track, a frequent contributor to the Harvard Business Review, Psychology Today, Mindbodygreen and many many other great articles, both in popular presses as well as professional journals. Doctor Seppala was educated at Yale, Columbia and Stanford, and one thing that I think is interesting of note is the work you did with military veterans returning from the wars in Iraq and Afghanistan, and working on Yoga based breathing to help them deal with their recovery and with PTSD and this work was highlighted in a documentary called <inaudible 0:01:39.6> mind. And you've also, your work's been featured in Amy Cuddy's bestselling book Presence and also Congressman Tim Ryan's book, The Mindful Nation, and you're also founder and editor in chief of Fulfilment Daily, a new site dedicated to the science of happiness. So again, welcome.

[0:02:03.2] Dr. Emma Seppälä: Thank you.

[0:02:04.9] Acharya Fleet Maull: So today we're talking about emotions and we're talking about stress and resilience and I know this is something that concerns everyone, I'm sure everyone of the audience. Many of us like you know relative or very privileged lives here in the West where our needs are met in ways unimagined before in earlier times in history. <inaudible 0:02:30.8> other's in our society are still among the maritans that experience a lot of stress <inaudible 0:02:35.2> resource, but we all, it seems like all of us, no matter what we're doing in life we're experiencing more and more stress in this modern life and it's always a challenge to manage our own emotions and our reactions to the stress and the pressures in life. So maybe we can start there and you can talk a little bit about what is stress?

[0:02:53.6] Dr. Emma Seppälä: Well, stress is an activation of a certain part of our nervous system called the sympathetic nervous system, in response to a life or death situation. And it is dedicated to save our lives in the face of extreme danger like being attacked by a predator or needing to get out of the way of an oncoming truck that's going 100mph and those or things like a surgery or an injury and the stress response comes in and really prepares the body to survive. To fight or flee, to be mobilised to fight injury in the body and so forth, so it's a wonderful thing that's helped our species survive. In our DNA <inaudible 0:03:46.4> though we are very often sort of coming to high levels of stress, and thereby actually really fatiguing the body because it ends up being chronic, even though as you point out, most of us are not in a life or death situation every day. So there are a number of reasons why we experience so much chronic stress despite living in first world countries, is that we bought into this idea that in order to be productive, in order to be successful, we have to be stressed, we have to be in high adrenaline mode which is why we over caffeinate, we aim to the last minute to get things done, but we are doing things that are really making our body go into this very strong state of stress with this idea that

that's the only way that we can get things done. So we often think or say things like "Oh I have to finish this project" and we go "Get an energy drink" or something like that. But what we're actually doing is fatiguing ourselves and we're seeing so many stress related illnesses, so 80% of doctor's visits are tribute to stress. We're seeing sleep problems, we're seeing very high levels of anxiety, and those are all related to highly activated sympathetic nervous systems. So if you look at the research however, we're going to be more productive, less fatigued, and more emotionally intelligent and make better decisions if we choose to stay in a calmer state, but somehow we've bought into this idea that stress is important in order to get things done. Now on the other hand there's another reason why we're feeling so much stress and that's technology has made our life incredibly easy, but it's also given us so much more information every day, so one study conducted in 2009 shows that we are taking in the equivalent of 34 gigabytes of information every day, that's equivalent to a hundred thousand words, certainly something that our brain has not been evolved to cope with, but if you think about it we are receiving such an influx of information day after day after day, this is an extreme time where we're receiving texts and email, email from bosses, texts from family, phone calls, this that and the other all day long, and that is our constant input, constant stimuli, that can really tax our nervous system again.

[0:06:11.8] Acharya Fleet Maull: Well you know, your academic career had to produce quite a bit of stress, I can just imagine being at Yale and then Columbia and then Stanford, in one of your <inaudible 0:06:21.7> presentations you talked about the stress you saw in the student body at Stanford and how really unhealthy it is.

[0:06:31.2] Dr. Emma Seppälä: Absolutely, so one of the reasons I wrote the Happiness Track was in response to a real pain point that I'm seeing across our society of very high levels of stress and a buying into this myth that in order to be successful you have to postpone or sacrifice your own wellbeing and your own happiness. So this one experience that we had, teaching a science of happiness class at Stanford, one of the students came up to my colleague and said to her "I have to drop out of the class because it goes against everything I've ever learned" and when my colleague asked her student "Why? What do you mean?" The student told her "Well, my parents told me I have to be very very successful and when I asked my parents how do I become successful they said you have to work very hard and when I said how do I know I'm working hard enough they said you have to be suffering." So it feels like a shocking response, why would a parent say that, but we are all subtly buying into this and we all think that somehow success comes at a cost to ourselves and yet that's just not true if you look at the data. If you want to be more focused, if you want to be more creative, charismatic, all of the things that we need to be successful, it behoves you to actually take care of the state of your mind first and foremost and to take care of yourself, to be happy, to be more at peace and all of those things, if you look at the data, are the ones that are going to lead to long term success without the burning out, without the exhaustion, without the chronic fatigue, without all the other issues that we're seeing.

[0:08:04.6] Acharya Fleet Maull: Although there can be harmful stress and chronic stress can create tremendous health risks for us, there is a necessary quality to stress, right? I mean we exercise to put stress on our muscles and bones so they'll grow and thrive, we need to challenge ourselves mentally, emotionally, spiritually in order to grow and thrive. So could you make a difference between what might be healthy stress or good stress and then what is negative or chronic or damaging stress?

[0:08:35.1] Dr. Emma Seppälä: Sure, as I mentioned earlier, short term stress is really great for life and death situations, and there's no doubt that a little bit of stress is going to push you through that deadline, knowing you have to hand your taxes in tomorrow you're going to sit down and finally do them, and so those are short bursts of stress and

there's absolutely nothing wrong with those, but the idea of the chronic stress, there is no doubt that it really actually breaks down our body and mind, our cognitive faculties like attention, memory and so forth, so that's not something we want to continuously have. However, if you look at, you might wonder well, what do I do? How can I help feeling stressed, this is just kind of the way of the world. And so what I'm suggesting is there's not much you can do about the stresses coming your way, inevitably we're going to get stresses from our personal lives, from our work lives, and they're coming at us. There's not much we can do about that. But what we can do is build our own internal resilience to that, what we can do is take care of the state of our own mind because when we do that we are more resilient, we are stronger in the face of whatever comes at us, and that's where things like meditation really can help, or breathing, which is probably the fastest way for us to calm our mind and take care of the state of our mind in minutes. So you mentioned the research I conducted with the veterans, we did a <inaudible 0:10:03.5> study in collaboration with David <inaudible 0:10:07.3> at the University of Wisconsin, looking at veterans that have just returned from Iraq and Afghanistan, from combat, and they had levels of trauma and post-traumatic stress and we looked at how we could help them and in the face of very high anxiety sometimes sitting and meditating is not an option because it can make people feel more anxious, and so we looked at yoga based breathing and we know from research that breathing can reduce your heart rate and your breath <inaudible 0:10:39.3> in minutes. And we actually did a one week long intensive breathing program called <inaudible 0:10:46.4>, and it's offered by a non-profit project <inaudible 0:10:50.4> for veterans and their families and we looked at that and after a week their anxiety had normalised and after one month and one year the results were maintained, suggesting permanent improvement, so there's something very powerful about breathing that can really help you regain a lot of resilience on the inside, probably by activating your parasympathetic system, regulating things so that you can be in a more normal state, but you know actually I have to do a weeklong program too in the moment itself, just by lengthening your exhale, slowing your breathing, you can lower your heart rate and your blood pressure and then the longer breathing, the <inaudible 0:11:29.8> clear breathing we looked at is particularly good for trauma and long term anxiety.

[0:11:35.5] Acharya Fleet Maull: So I'd like to talk more about the relationship between our internal processes and meditation yoga, breath work, these kind of things, but first could you define for us what you mean by resilience?

[0:11:47.1] Dr. Emma Seppälä: Resilience is your ability to meet the oncoming demands of your life in the optimal way, in the way that will lead to the best results for you and the people around you.

[0:11:58.2] Acharya Fleet Maull: So a lot of <inaudible 0:12:00.8> is, I completely agree, we're probably not going to slow down a lot of the stress that's coming at us from modern life, we still end up creating a lot more stress internally by the way we think about our lives, the way our mind is organised, the way we responding, so there's a lot of self-cause and self-created stress, and a cause of the relationship between bad an resilience or lack thereof.

[0:12:24.2] Dr. Emma Seppälä: Well, definitely there are things we do that cause more stress and thoughts that we have, for example our relationship with ourselves, and research has shown that you know when you're very self-critical which a lot of people think is a good thing, people think that self-criticism is a good thing for self-improvement, and there's no doubt that self-awareness is important for knowing your weaknesses and knowing how you can improve, but self-criticism in the research is associated with less resilience, with more anxiety and depression in the face of failure and challenge, with a far greater problematic response to difficulties in life, so you're less likely to actually learn from your mistakes. And so the opposite of self-criticism is self-compassion, which is

really the ability to treat yourself as you would a friend, that's probably a nice, simple way of putting it, so using the words you would with a friend with yourself when you're going through challenge or mistake or failure, and research shows that that makes you far more resilient in the face of that, where you actually grow from your mistakes, you learn from your difficulties, and you have better relationships, you're happier, less anxious, so that's a very ancient and simple tool for us to think about.

[0:13:48.3] Acharya Fleet Maull: So what about the relationship between resilience and just the kind of predominance of self-referential thinking altogether, whether it's critical or not, I mean it seems we tend to be very self-focused, a lot of traditions... We talk about self-compassion, here obviously just being a good friend to ourselves makes a lot of sense, we also talk about compassion for others, thinking about others and getting involved with things larger than ourselves, so is there a relationship between our love for self-referential thinking and stress versus resilience?

[0:14:22.5] Dr. Emma Seppälä: We know that anxiety and depression are associated with more self-focused attention, more self-focused thoughts, and that makes sense when we think about our own moments when we've had difficulties or challenges, because we're in this sort of problem solving mode for ourselves in that moment, but we can get lost in that place, again when you're stressed too you're more self-focused which maybe was originally a good thing if you were being chased by a predator, it was maybe a good thing that you weren't distracted by a million things and really focused on getting yourself out of the situation, but we also know that that's one of the greatest needs we have as human beings is for social connection, after food and shelter our greatest need is to connect with others in positive ways. So if you're looking at chronic stress and how disconnected that makes us from others, a lot of the Americans say that they have no-one to speak to about personal problems, so we're seeing a real rise in loneliness in the united states, and again it's our greatest need. It's our greatest need is to connect, and when you do act out of altruism, empathy and compassion, you actually elevate your wellbeing, not only do you connect with others and get out of that self-focus mode, but you feel better, you're happier and you're healthier and research shows you even live longer. In one interesting study the scientists looked at longevity of people who had lived through very stressful life experiences, and stress predicts a shorter life, but among that group of people, those who in some way engaged in service ended up living longer, it's as if that compassionate, altruistic stance in life also serves as a kind of buffer against stress, again, creating more resilience. Again, compassion is huge, I would say looking at all of the data, that an altruistic, compassionate stance in life is one that leads to the greatest happiness, fulfilment, sense of meaning, purpose but also longevity, so there's so much to be said about that.

[0:16:24.1] Acharya Fleet Maull: So you mentioned, so clearly, having a basically friendly, kind relationship with ourselves and then finding a way to be engaged in the world with a genuine inspiration to serve and connected to something larger than the selves focusing on our support systems, our relationships, all this helps us thrive. But then the opposite is happening, we tend to isolate, self-focus, stress increases and then you can get anxiety, depression, anger, all those kinds of difficult emotions, maybe you could talk a little bit about that and I'm sure a lot of us are experiencing, for the most of us on a daily basis, how do we work with that? Where do we start with all this?

[0:17:06.6] Dr. Emma Seppälä: Absolutely, well I think first we can start to look at how our experience is with pain. There are two ways to approach pain, I'm talking about emotional pain here, one is to go into that pain and feel really sorry for ourselves, which is something we've all done at some point or another, the other way to go through it is to experience that pain and use it as an impetus for others not to feel that kind of pain. For example, let's say it's your birthday and no-ones calling you and you're feeling very lonely

and sorry for yourself, that in itself can be an impetus to make sure no-one else ever feels that way on their birthday. It sounds simple but it's... our pain is a gift for us to experience what others do and for us to be inspired to help in whatever way we can so others do not feel that way. And in that way it's a great teacher.

[0:18:10.0] Acharya Fleet Maull: That's a beautiful insight because very often I think when we are feeling pain and suffering we tend to kind of feel bad for ourselves, we may even feel resentful or in pain because we're in pain, and if we can make that shift to realise this is actually a gift that could help enlarge my life and shift my focus, actually get a relationship with the world in new ways it would be fulfilling for myself, that's really a wonderful insight. Let's talk more about how do we build resilience? You talked a bit about some of these yoga and breathing methods, maybe we could talk more broadly about mindfulness and meditation and so forth, you know those of us who would like to live less reactive, happier, thriving wise, we're dealing with the stress in our lives, where do we begin and what do we do?

[0:18:55.9] Dr. Emma Seppälä: I think you have to find the shoe that fits for you, so I started with meditation early on, but I took it more seriously after 9/11, I was living in Manhattan, when I had so much anxiety after that at the time that I could not sit and meditate, I just couldn't, it was overwhelming and I couldn't do it, so I started then going to yoga and I was going to Bikram yoga in New York City, which is far from spiritual if you've ever done Bikram yoga, but it's very intensely physical, but it's where I needed to start in my state of anxiety, I needed that very physical draining, exhilarating, physical experience and after doing that for a couple of months I realised you know what, I need something more, I need something deeper you know and that's when I tried meditation again and again it was very difficult for me, and then I actually went and learnt the breathing practice, the <inaudible 0:19:59.2> breathing practice and that helped to settle my nervous system, that's where I really learned and got inspired to do more research on breathing because I realised that really calmed my nervous system and as of that day as I learned that I started meditating regularly daily because all of a sudden my mind was calm, so I think that everyone comes from a different place, some people are naturally very peaceful, very silent on the inside, they can just slip into meditation immediately, others need a little help and so there are various ways that you could do that, chanting is another fantastic way, even group, some Sanskrit chanting or Buddhist chanting or Catholic song, whatever it is that is a path that draws you doing that, any group can lead to a lot of serenity. I'm speaking here more from experience than as a scientist, but if you look at the research you also see that when we do look at research on breathing and chanting and singing, those are things that actually calm our nervous system, and perhaps through breathing but also through the communal aspect we know that when we do things in harmony as a group at the same time, it also has a deep influence on us, so I would say find the shoe that fits for you. If one form of meditation doesn't work for you, don't immediately think I'm not good at meditation, which I hear people say all the time, which is false.

[0:21:25.6] Acharya Fleet Maull: You mentioned the research connecting longevity with our enhanced social connections and our systems of support and so forth and I believe there's a lot of research that shows that engagement with a religious community, a faith community, congregation, just that engagement in something that you have faith in and believe in plus you know there could be a lot of things going on that doesn't involve community, it often does involve singing, it may involve chanting, you know it could involve all these different things that seem to be connected to positive <inaudible 0:21:56.9>

[0:21:56.9] Dr. Emma Seppälä: And human values, usually, values, service, all of those things are what we're finding through the research is all these things that our religious

communities, spiritual communities have been doing for centuries and centuries across cultures are things that are deeply soothing to the human body, to the human mind, to the human heart and that it's something that you know partitioners know, but the science is just starting to uncover and see.

[0:22:27.7] Acharya Fleet Maull: So we know there are simple breathing techniques that we can use to immediately activate the parasympathetic branch of the automatic nervous system and bring ourselves, when we're highly overregulated, stressed out or when the reptilian brain has kind of taken control, we can bring ourselves back down a bit and that seems pretty straight forward and simple and has an immediate impact, we can just shift to belly breathing, we can extend the outbreath a little longer than the in breath, things like this, so those have an immediate impact. What does the science tell us about the longer term impact of having a regular meditation practice, a regular mindfulness practice, a regular yoga practice, in terms of its impact on our brain or our overall resilience or resistance to stress, our capacity to deal with stressful things?

[0:23:17.2] Dr. Emma Seppälä: Well there have been so many studies on many different meditation techniques, yoga, breathing, so but overall the impact is a very positive one, we definitely see an impact on the brain. We see strengthening for areas such as the area for attention, for memory, for emotion regulation, which kind of is that ability to just take a step back and let ourselves be overwhelmed by our emotions, for compassion, for staying in the present moment which we kind of need, we're happier when we're in the present moment, research shows that, we are happier when our mind is with what it is that we are doing, even when we're doing something that we don't like, than if our mind were wandering somewhere else. And we also see boosts to the immune function, probably because stress impacts our immune system, it taxes it and chronic stress therefore weakens it, and we're seeing strengthening in responsive meditation, so there's so much to be said for it in terms of the findings, but there's almost so much to be said in terms of what people are saying their experience is that really can't be quantified with data.

[0:24:23.7] Acharya Fleet Maull: Well, I'm sure many in our audience are already doing some of these things, so I hope there are people tuning in who absolutely know nothing about any of this, because this is <inaudible 0:24:35.1> it does require I think for a lot of us a kind of counter intuitive leap of some kind, we find ourselves with very stressed out, difficult emotions and our tendency is to want to move away from that, and we do it through reading or substances or self-medicating and all different kind of ways, so instinctually we want to move away and it seems that what we're hearing, we have to find some healthy way of moving towards in order to really thrive and so how do people make that leap? You made that leap somewhere in the midst of your academic career right?

[0:25:13.4] Dr. Emma Seppälä: Yes, actually, when we overeat or overwork or over-exercise or over-TV or over-internet or over-porn, whatever it is that people do to relief stress, we actually are following a correct instinct which is that we know we can find our balance again, we know we can come back to a place of balance, we're just looking in the wrong place, but it's the right instinct, or when we reach for alcohol or chocolate, whatever it is that people are reaching for, they're trying to change their internal state, and we can change our internal state, it's just that that chocolate or alcohol or whatever it is, is going to be a very short lived change in state, it's not really going to do anything, you're probably going to go back to whatever it is you were feeling. So as for meditation or breathing, yoga, being present with whatever is, is actually going to be a much faster route, but we live in a society where we don't like negative emotions, we don't like pain and this is very characteristic of US culture by the way. A study looking at German versus US culture looked at condolence cards, what are the cards that we send people when someone has passed away? In the US the cards are all about hope you feel better soon, all

about we hope you feel better, we hope you don't feel that negative emotion anymore, but if you look at the German cards they're like we're really sorry for your suffering, for your pain, whatever, there's not a pushing away of the negative emotion and the same is in, if you look at a lot of the East Asian cultures, there's this sense that the yin and the yang, the pain is part and parcel, it's not something that has to be pushed away, so we have to also look at our own cultural biases, we're in a country where we love pain killers, I just don't want to feel anything, let me give birth and not feel any pain. Whatever it is now, I go to the dentist, I definitely take the pain medication, but I have to say there's something to look at also about our avoidance, our discomfort and our pushing away of things that are part of life, we all will feel pain, we all will feel sorrow, we all will feel loss, it's part of the human experience, so it's something that culturally we need to look at our bias but also in our reactions we have, whatever they are, those unhealthy habits we have of coping with our negative emotions, let's replace it with something else just for a very short period of time and see if that helps. And so this is an invitation to why not use that meditation practice you have, the chanting practice you have, the yoga <inaudible 0:27:53.8> practice, whatever it is you have, whatever app you have on your phone, why don't you try that the next time you feel the need to overeat, for example and see what happens. You know just give yourself permission, I'm going to do this for twenty minutes and if I still want to overeat I will, but just do the experiment.

[0:28:09.4] Acharya Fleet Maull: That's great, so you made a number of really important points, so I think it's really helpful to know that our instinct to shift our state is quite natural and even intelligent, it may be mixed up with a low tolerance for suffering which may be a cultural bias and it might be helpful if we could expand a bit because that instinct <inaudible 0:28:29.4>, but then the coping mechanisms that we use, not only are they very temporary but they have a lot of collateral impacts when they involve sugar and alcohol and caffeine and you know whatever, these things can have a lot of collateral damage, so they're not the best strategies or the best solutions to begin with, and furthermore you know there's a lot of emphasis on happiness today, you wrote a book on happiness. So obviously nothing wrong with happiness, we all want to be happy, it's one of the things that unifies us all this <inaudible 0:29:04.4> the Dalai Lama has said that many times that all human beings want to be happy, sometimes our strategies are not so effective, nonetheless it seems like if you think of happiness and life or a long, more sustainable kind of fulfilment in life, it does have something to do with some level of distress tolerance as well, some ability and willingness to embrace to a certain degree suffering.

[0:29:27.9] Dr. Emma Seppälä: Yeah, it's inevitable and that's why the best thing we can do is cultivate a state of mind that is tolerant, that is peaceful and that is strong from the inside, cultivate a nervous system that doesn't get irritated by the smallest slightest things, that so if you're see you're very stressed for example, the littlest things can irritate you then how are you going to cope that day with a big thing that's also on your plate? And that's why you know the dedicated practice, whatever it is, that you have for yourself, it could be walking in nature, research shows walking in nature is so good for anxiety and depression, whatever it is that works for you, having a dedication to that time in your life is going to help strengthen you so you can be more wise, for lack of a better word, I mean that word is not used much, there's no research on wisdom, but really that's what we're talking about to have that wisdom, that human wisdom in the face of whatever comes on.

[0:30:24.4] Acharya Fleet Maull: Well this is really wonderful information, in fact I hope we have a lot of young people in our audience, and I think there's a kind of fork in the road a lot of us face in modern society, you know we either jump into that very competitive world and stress ourselves up to the extremes wanting to succeed, we become one of those driven Americans or driven westerners, or we may opt for a less challenging career or a lifestyle really kind of a fear of that, maybe not as a completely

healthier conscious choice either, or maybe not really fulfil our potential. So the idea that we could develop the resilience to really actualise our lives and take out challenges and really you know thrive into something positive and successful, but we don't have to kill ourselves doing it, it seems to be a really powerful message.

[0:31:14.6] Dr. Emma Seppälä: Yeah, you should follow your dreams, your aspirations and this planet needs a lot of people with ambitions to help take care of it, repair some of the things that have been done, to make the society a more positive, more tolerant, more compassionate one, and there's a lot of work to be done, there's no reason for anyone to not follow those dreams and aspirations, the most important thing they could do is to take care of themselves, they're so strong and they are resilient and they are helping and they are happy on their way there, that's going to make them so much more effective than anyone else.

[0:31:53.4] Acharya Fleet Maull: Well, this is wonderful, I think I'd just like to finish one final question. I mean you're down in silicon valley, I can imagine it's a pretty stressful world, a lot of very competitive, high performing people and terms like compassion may seem kind of soft in many sectors. His Holiness has said again at this point compassion for us globally is no longer a luxury, it's an absolute necessity to our survival. So I wonder if you could you know say something about this compassion, we kind of say it's a nice idea, wouldn't it be nice if we could be compassionate, but both in terms of self-compassion and <inaudible 0:32:30.6> compassion and altruistic stance in life, but this isn't just a soft idea or a nice thing to have.

[0:32:36.9] Dr. Emma Seppälä: No it really isn't, again if you look at the research you will be happier, you will live longer if you need a selfish reason to be compassionate, there are plenty of them, but the other thing is that if you look at the data even in business and your professional life people who are more caring, more supportive of others, who have the positive relationships because they've gone out of their way to help others, are likely to be more successful as long as they're not you know the kind of person that lets themselves be taken advantage of, they end up more liked, more popular, more promoted and in the end they do better, so if you need selfish reasons to cultivate compassion, then go for it, there's nothing <inaudible 0:33:15.2> bad, but making the world a better, friendlier place around you, being a person who uplifts other people, who comes into the room and makes people smile, you know that kind of person that comes in and it's like a sunshine, we all know that, there's no reason we can't be like that, if not for others then do it for yourself.

[0:33:34.5] Acharya Fleet Maull: Well thank you so much, this has really been wonderful. So Doctor Emma Seppala who's the science director for the Centre of Compassion and Altruism Research at Stanford University, and also author of the Happiness Track, this has been wonderful, thank you so much for your time today.

[0:33:52.5] Dr. Emma Seppälä: Thank you and a pleasure.