

Listening in With...

Mind-body medicine pioneer

Deepak Chopra, M.D.,

was born in India, where his father was a prominent cardiologist. After going to medical school himself, Chopra emigrated to the United States in 1970 and eventually became chief of staff at New England Memorial Hospital outside Boston, Massachusetts. After becoming increasingly disillusioned with conventional medicine, he turned his attention to the ancient Indian system of Ayurveda. Chopra is now the prolific author of many bestselling books and cofounder of the Chopra Center for Wellbeing in Carlsbad, California. Here, Chopra talks to *Unity Magazine* editor Katy Koontz about embracing a new way of looking at who we are and where we come from—as well as where we're headed.

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Deepak Chopra

Evolution EVOLVED

Katy Koontz: Your new book, *Super Genes*, suggests humans have evolved far too quickly for only random mutations to be part of natural selection. Can you explain that?

Deepak Chopra: Strict Darwinian evolution, the dominant theory for more than a century, is based on two ideas—random mutation and natural selection. That means that first you have a random mutation and then some of those mutations that stand out will, on the basis of sheer numbers, naturally be selected as part of the evolutionary process. So basically, it's a numbers game. There's nothing purposeful happening.

But no one back in Darwin's time knew what a gene was or had ever observed a mutation. We still don't fully understand how species evolve, but we do know now that gene activity is influenced by every experience we have, no matter what it is. You go see a movie; that influences gene activity in certain parts of your brain. You sleep; that influences gene activity again. You exercise; that influences gene activity. The food you eat influences gene activity. Your emotions, your thoughts influence gene activity.

The mechanisms by which that happens are epigenetic, either increasing or decreasing the activity of the gene—depending on what the activity is. There is no experience that doesn't have an influence on gene activity through an epigenetic mechanism. It's possible that those genes that are more active could naturally select themselves out, but nobody's proved this at the moment. That's just conjecture.

KK: The gene *itself* doesn't physically change but how it *acts* changes, right?

DC: Yes, in epigenetics, the activity of the gene changes, but the gene itself

doesn't change—we're not talking about genetic mutations.

KK: Super Genes shares some intriguing ideas about the randomness of evolution. Can you elaborate on that?

DC: Random suggests that it's unpredictable. If I go to Grand Central Station in New York City and see everybody going here and there, it seems totally random. And yet if I go every day, I will see that there is indeed a distribution pattern—approximately so many people are going to Philadelphia, so many are going to Boston, so many are going to Washington, D.C. So there's an element of predictability that comes from looking at the distribution patterns.

The more geneticists look at distribution patterns, the more they are inclined to think what we initially call randomness could be described differently. I believe randomness is another word for *creative interactivity* at the genetic level. To me, randomness doesn't explain a Mozart or a Shakespeare or an Einstein. That's not a random mutation.

As I mentioned previously, our experiences, including our cultural environment, shape our genetic activity. If you ask regular neuroscientists where experience occurs, they will say it occurs in the brain. But that's a theory. We do not actually know the mechanism of any experience.

KK: What's your theory on that?

DC: When I look at an object—right now, I'm looking at the Empire State Building—what is coming to my eyes are photons, what's going to my brain is an electrical current, and what's happening in my brain is that the gene activity is being modulated

and then chemicals are being released. But I'm not experiencing that. I'm experiencing the Empire State Building. What's happening in my brain does not explain how I experience a three-dimensional reality in space and time that has color and sound and texture and taste and smell. The electrochemical activity does not show me how I experience anything—including things like insight, intuition, imagination, creativity, love, compassion, joy, anger, frustration, guilt, depression, or shame.

How does this electrochemical activity produce these complex emotions? How does it produce memories? How does it produce the everyday experience of a perceptual reality? How does the universe fit inside my brain? It doesn't. So where is the experience happening? For lack of a better word, we can say that the experience is happening in consciousness. Where is that consciousness? There's no location in the brain where we can say, "This is the center of consciousness."

KK: So where *is* consciousness?

DC: The problem is that we're looking for a physical explanation, and it could be the other way around—that consciousness is fundamental and what we experience as the mental and perceptual experience of the world is actually a modified form of consciousness. In other words, there's only consciousness, and the physical world and your mental experiences are modified aspects of consciousness. So when I say the surface of the rock is hard, or the feather feels soft, or this object is red, or I'm having an exhilarating dream, or I am in love, these are some modulations or qualities of consciousness.

If all experience happens in consciousness, then what we see as

gene activity is just images of a process in consciousness. What I wrote in Super Genes (and in a new book called Creative Cosmos I'm currently writing with physicist Menas Kafatos) is that the universe is actually a manifestation of consciousness—and then so is the brain, so is the body, so is a rock, so is an atom, so is a subatomic particle, and so is a galaxy. That's the short answer.

KK: What would that mean for us?

DC: If the physical body is nothing other than the metabolism of experience in consciousness, we have to radically revisit Conscious evolution could blanex is ale tecopolier more consisted to the proposer. what is termed the

Dlaner is we recognize that the power is but the power is in how we we sensations that the feather is soft, for example). We also have to take another look at the Darwinian mechanistic explanations and say that not only is consciousness the driver of evolution, but it's all there is. Consciousness conceives, governs, constructs, and becomes the physical universe. Your real identity may be that you are a formless being having an experience of form that includes your own brain and body.

KK: Like the expression, "We are not human beings having a spiritual experience, but spiritual beings having a human experience."

DC: Fundamental reality—whether you call it the soul, the spirit, or even God—is not physical. It's formless and timeless. The source of everything that has form has its source in something that does not exist in space and time.

KK: You've been doing research with several different high-level scientists showing that meditation can produce some of these epigenetic changes you spoke of earlier. What are you finding?

DC: We've seen that not only is there a slowing down but there's also a reversal of aging at a cellular level during meditation. We're also finding that the genes that cause self-regulation (or healing) are up-regulated, so they become active—while the genes that are associated with inflammation (which is connected to many illnesses, including autoimmune disorders, infections, diabetes, Alzheimer's disease, heart disease, and many types of cancer) are down-regulated, becoming less active.

KK: What kind of meditation are you using for the studies?

DC: The subject sits quietly and observes their breath for a few minutes, then they do a few minutes of self-reflection (Who am I? What do I want? What is my purpose? What am I grateful for?), and then they go through a process of very slowly repeating their different identities (I am Deepak. I am a doctor. I am a father.). And then they go into a mantra meditation for about 25 minutes before finally sitting with body awareness. It's called Primordial Sound Meditation, and it comes from the ancient Vedic tradition in India.

We also do subsets of studies. We've recently done a study where the

subjects kept gratitude journals. At the end of the day, they wrote maybe five or 10 things that they could be grateful for during the day. Just doing that decreased inflammation in the body, changing inflammatory markers called cytokines, which means it changed their genetic activity. After seeing that gratitude decreases inflammation, now we're looking at whether an opposite emotion, say hostility, might cause inflammation.

KK: Your findings are at the heart of several Unity practices, including affirmative prayer.

DC: Yes, any form of contemplative self-inquiry or reflection influences your genetic activity in a healthy direction through epigenetic mechanisms. In fact, many researchers are now looking at something called bioelectric medicine. If you stimulate a major nerve called the vagus nerve (which passes through several important organs), it decreases inflammation and sometimes gets rid of diseases like bronchial asthma or arthritis. But you can do the same thing through yoga, breathing techniques, tai chi, or qigong, for example. We can measure at cellular and genetic levels how your body responds to these practices that have been part of wisdom traditions for thousands of years. You can also get this response through what's called energy medicine or biofield medicine.

KK: I love that these ancient practices are actually valid, fundamental ideas that we can learn from today.

DC: Absolutely. We're also finding that genes do not work on a one-toone basis. They act as networks that regulate other networks of genes. For example, only five percent of disease-related gene mutations are fully penetrant, which means you can't stop them. There are almost a hundred genes involved in Alzheimer's disease, but only three or four have a one-to-one correspondence—meaning

everyone who has one of those genes will get Alzheimer's disease. With the other 96 or 97, you may or may not develop the disease.

We also know now that there are 150 times as many bacterial genes as there are human genes in your body. This represents only three to five percent of your body mass, but if you look at the DNA content, you see that the human genome has 23,000 genes and the microbiome, as it's called, has 3.3 million genes. Technically speaking, then, you are a bacterial colony with a few human cells hanging on for dear life.

KK: So even though the bacteria don't involve that much physical matter, it's the genetic matter that actually makes the difference.

DC: Yes, the gene is the brain of the cell. This microbiome cross talks with the human genome and responds to things like emotions, exercise, sleep, yoga, breathing techniques, and so on. So if you change your experience in a holistic manner so that you are focused on having a joyful and energetic body, a loving and compassionate heart, a calm and restful mind, and a lightness and joy in your being, all that will have a dramatic effect on gene activity not just the human genes but the microbial genes.

And so we can ask, do these bacteria have a consciousness? Did they come together and have an awakening that made them human? In ancient wisdom traditions, they say consciousness sleeps in rocks and minerals. Consciousness dreams in bacteria and plants. Consciousness starts to wake up and become aware of itself in animals and in some humans. The universe is becoming aware of itself through human consciousness.

KK: That reminds me of something Eckhart Tolle said in our November/ December issue—that transcendent consciousness wants to gradually emerge in this dimension,

expressing itself through form—so everything in our physical universe is a manifestation of that slow and gradual expression of the Divine. Do you agree?

DC: One hundred percent. All consciousness is transcendent. It's just that we are experiencing it as the material world with form and color and solidity. The evolutionary part of consciousness is moving in the direction of knowing itself. This idea has been, in different ways, part of every ancient wisdom tradition.

KK: Barbara Marx Hubbard, in another article from that same issue, said that nature (or God) selects for what says ves to potential. Do you agree?

DC: Again, 100 percent. Consciousness is the immeasurable potential of all that was, all that is, and all that will ever be. There is nothing harder than consciousness. It assumes the form of a subatomic particle or a galaxy or a human brain, but all of it is still nothing other than consciousness.

KK: In Super Genes, you describe studies showing that not only do your own thoughts, emotions, and experiences create epigenetic changes, but those of your parents and your grandparents can also affect your genes. Can you expand on that?

DC: If a cow gets zapped by an electric fence, then the next two generations of cows will avoid the fence even though they've never been exposed to that electrical shock themselves. Researchers showed something similar by exposing mice to a very pleasant smell like wintergreen and then giving them mild electric shocks. The subsequent two generations of mice were afraid of the smell even though they were not shocked. A study came out this past year from Mount Sinai Hospital in New York City showing that the children

of Holocaust survivors have epigenetic markers associated with trauma that influence gene activity.

Our consciousness influences everything in our surroundings as well; they say when a person is perfectly established in peace Conscious restriction of all that was all the was all that was all the was all consciousness, other people start to feel that, and it affects them. It decreases hostility in others, even though the peaceful person is not necessarily doing anything. Their very presence does

KK: Like a tuning fork.

that.

DC: Right. We never have any emotions in isolation. Because emotions are a result of interaction with other people (and even with pets), a whole new discipline is emerging called interactive neurobiology that says we not only influence but also regulate each other's emotions. This is becoming even more potent with the Internet and the global brain. So for example, I could text somebody in Africa an emoticon that says hugs and kisses, and they get a dopamine hit right there. You read something about what ISIS is doing in the Middle East, and it affects your biology. So it's becoming clearer that consciousness cannot be squeezed into the volume of a body in the span of a lifetime.

KK: It's exciting to think about where we can take this evolution of consciousness—I feel as though all bets are off there.

DC: Yes, I think conscious evolution could lead to a healthier, more sustainable, happier planet if we recognize that the power is all within us and in how we treat each other.