Pathways: What is mental rehearsal and how can we use it to change?

Dr. Dispenza: Mental rehearsal allows us to change our brain—to create a new level of mind—without doing anything physical other than thinking. It involves mentally seeing and experiencing our "self" demonstrating or practicing a skill, habit, or state of being of our own choosing. Through mental rehearsal, we can employ the advanced faculties of our frontal lobe to make significant changes in our life.
Several studies have shown that the brain does not know the difference between what it is thinking internally and what it is experiencing in its external environment. In one experiment, two groups of non-pianists were asked to learn one-handed piano exercises and to practice two hours a day for five days—with one important difference. One group physically practiced their exercises, while the other mentally rehearsed the same exercises without using their fingers. At the end of the five days, brain scans showed that both groups grew the same amount of new brain circuits. How is that possible?

We know that when we think the same thoughts or perform the same actions over and over, we repeatedly stimulate specific networks of neurons in particular areas of the brain. As a result, we build stronger, more enriched connections between these groups of nerve cells. This concept in neuroscience is called Hebbian learning. The idea is simple: nerve cells that fire together, wire together.

According to functional brain scans in this particular experiment, the subjects that mentally rehearsed were so inwardly focused that their brain did not know the difference between the internal and the external world. Thus, they were activating their brain in the same way as if they were actually playing the piano. In fact, their brain circuits strengthened and developed in the same area of the brain as the group that physically practiced.

Pathways: You say in your book that thinking isn't enough to change our mind, and that change is a process of thinking, doing, and then being. Can you explain how this works?

Dr. Dispenza: The change we want to make has to go beyond thinking and even doing—we need to go all the way to being. If I want to truly be a pianist, I will start by acquiring knowledge, which involves thinking. Then I can start to gain experience through mental rehearsal, which again involves thinking. I also have to involve the body in the act of doing—physically demonstrating what I’ve intellectually learned—by playing the piano. But that isn’t going far enough. Imagine a concert pianist who does her best work in practice sessions, but struggles during a concert. Or to bring this a little closer to home, imagine a spouse who is the model of understanding on the drive home from work, but devolves into an impatient pouter as soon as
he or she comes through the door.

If I want to attain the state of being a pianist, my evolved understanding and my skills must become so hardwired and mapped into my brain that I no longer have to consciously think about playing, because my subconscious mind now handles that skill. Now that I am a pianist, any thought I have about playing, or desire to express my feelings through music, will automatically turn my body on to carry out the task of playing the piano. We talk at length in Evolve Your Brain about how we use different kinds of memory, activating different parts of the brain, to turn conscious thoughts into subconscious thoughts. We also learn that to master any particular skill one must possess a great deal of knowledge about a subject, receive expert instruction in that area, and have plenty of experiences to provide feedback.

We all go from thinking to doing to being every time we learn a skill well enough to do it automatically. Driving is a great example. The beauty of this process is that we can use it to attain any state of being we choose, from being more patient with our children to being healthy to being a happy person.

Pathways: What is evolution and how can we evolve our brain?

Dr. Dispenza: We evolve as a species and as individuals. In fact, our own personal evolution also advances the human species. Most of us learned in school that evolution is the slow, linear process by which species survive changes in their environment through adaptation over generations, selecting for specialized anatomy and physiology that help them to perpetuate their species. The human brain evolved in a linear fashion up to about 250,000 years ago, when (for reasons that remain a mystery) a sudden, explosive period of growth gave us a neocortex much larger and denser than that of any other species. This so-called new brain is the seat of our conscious awareness; it houses the capacity to learn and to reason, and the free will to create. Simply put, our neocortex, especially the frontal lobe, affords us the potential to transcend the gradual process of evolution and move into rapid, nonlinear evolution. Because we can learn from knowledge and our experiences—above all, from our mistakes—and since we have several specialized forms of memory by which we can remember what we learn, we can immediately modify our thoughts and behavior. Unlike other species, we can create a completely new range of experiences in just one lifetime.

In terms of the brain, evolution means learning, making new synaptic connections, maintaining
them, and applying what we learned so we have a new experience, which then is encoded in the brain. We may then pass on what we learned to our offspring and to other members of our species. What Evolve Your Brain presents is a process that can cause the brain to make a quantum leap by overcoming certain neural circuits that we’ve been given genetically and by encoding new experiences and information. When we evolve out of the primitive states of survival hardwired in our brain, fire new thoughts (which make new chemicals), change our mind (which alters the chemical message to our body), and modify our behavior (to create a whole new experience, thus bringing new chemistry that affects our cells), now we are on the path of evolution.

We all have certain habits and propensities that we’ve either inherited genetically, or that we’ve been conditioned to by our environment. Personal evolution requires us to break the habit of being ourselves and to become greater than our environment. We break out of our routines and habitual emotional reactions and behaviors by acquiring new knowledge and having novel experiences. In the early stages of learning, we are faced with novelty. Next follow moments during which we review and internalize the new stimuli, as we begin to make it familiar or known. By the end of every learning process, the newly acquired information is known and familiar; if we have learned a behavior or a task, it may now be routine, even automatic. Our ability to process unknown to known, unfamiliar to familiar, novel to routine is the route to our individual evolution.

**Pathways:** Are training programs or schools of wisdom necessary to evolving our brain?

**Dr. Dispenza:** In Evolve Your Brain, I outline a simple process of acquiring knowledge, getting instruction, applying what we’ve learned, and receiving feedback—that’s how we evolve our brain. We go from thinking to doing to being. That sequential process allows us to change. I do recommend, and have found it essential in my own experience, that if we want to evolve in the most effective way, we should seek out instruction from someone who has mastered what we want to learn.

There are many excellent individuals, programs, and institutions—some of which are mentioned in this book—that can help us learn new information, apply what we have learned, have novel experiences, and begin to modify our behavior. Each individual must decide for themselves whether starting with small changes, or taking huge leaps, is most appropriate for them.
Evolve Your Brain: The Science of Changing Your Mind (Part 3)

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