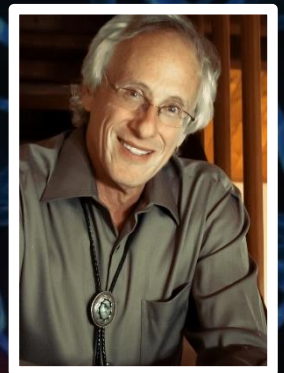


# **10 Mind Blowing Discoveries About the Human Brain**

**NeuroWisdom and the  
Secrets to Happiness  
and Success**

**Mark Waldman**



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**By  
Mark Waldman**

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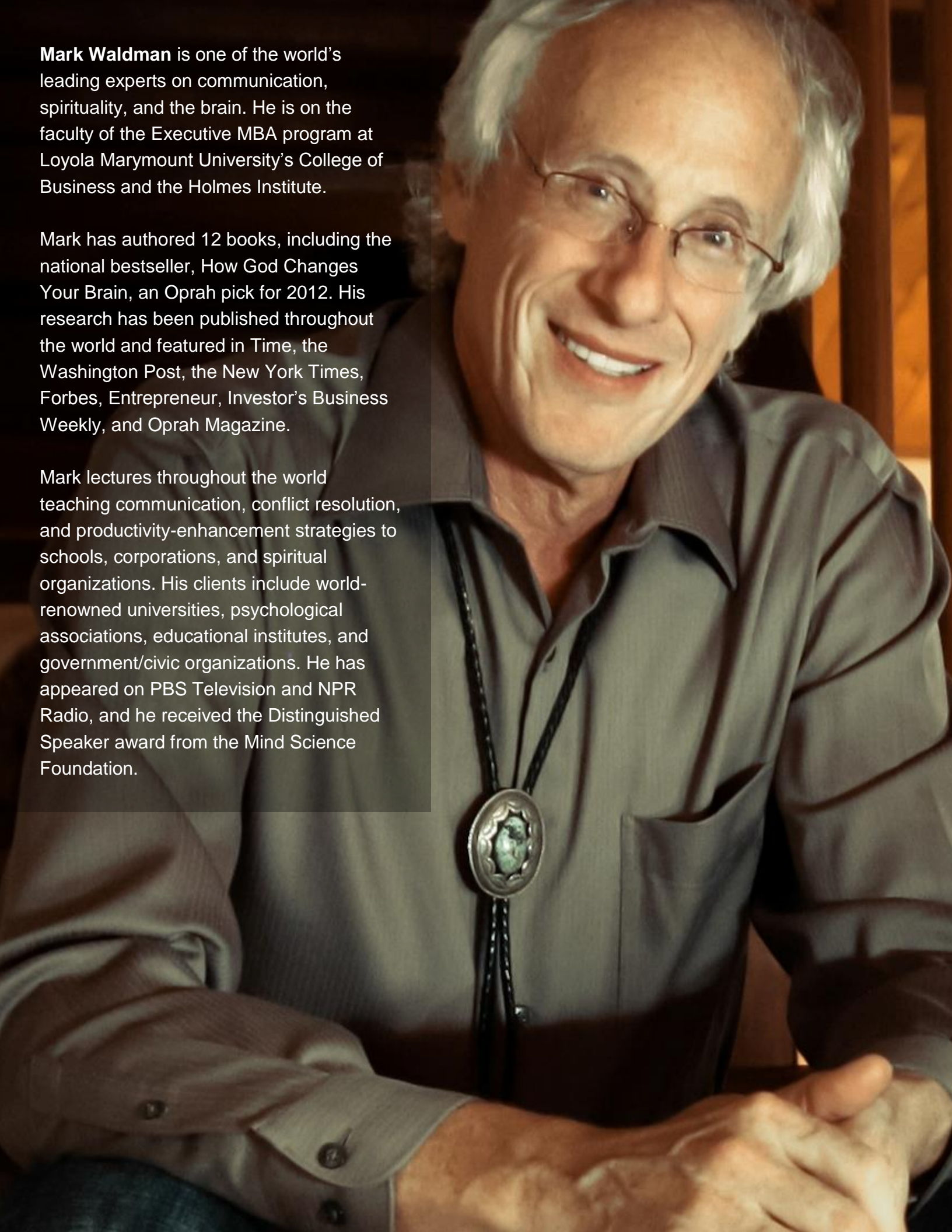
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**Mark Waldman** is one of the world's leading experts on communication, spirituality, and the brain. He is on the faculty of the Executive MBA program at Loyola Marymount University's College of Business and the Holmes Institute.

Mark has authored 12 books, including the national bestseller, *How God Changes Your Brain*, an Oprah pick for 2012. His research has been published throughout the world and featured in *Time*, the *Washington Post*, the *New York Times*, *Forbes*, *Entrepreneur*, *Investor's Business Weekly*, and *Oprah Magazine*.

Mark lectures throughout the world teaching communication, conflict resolution, and productivity-enhancement strategies to schools, corporations, and spiritual organizations. His clients include world-renowned universities, psychological associations, educational institutes, and government/civic organizations. He has appeared on PBS Television and NPR Radio, and he received the Distinguished Speaker award from the Mind Science Foundation.



# Introduction

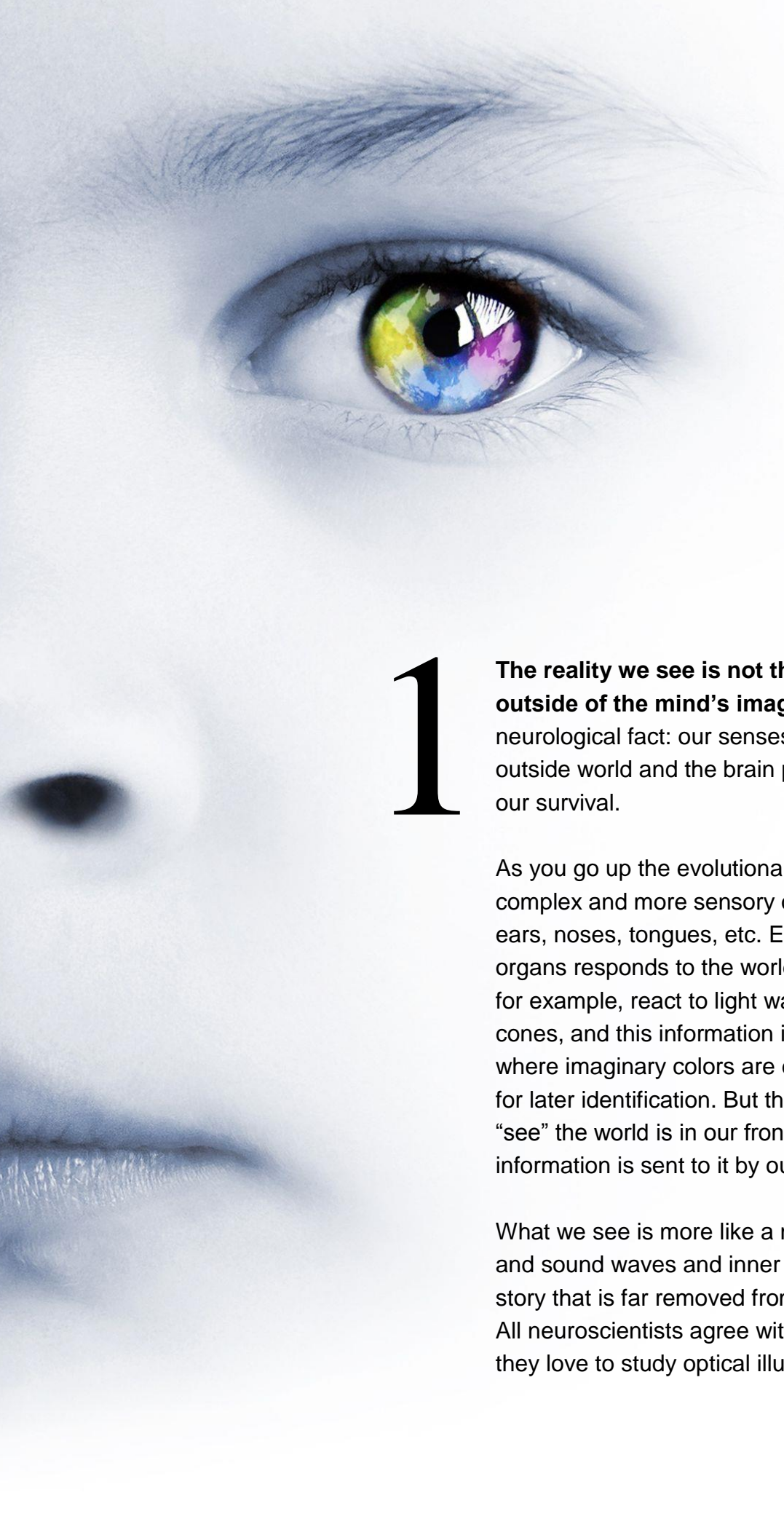
Hi, I'm Mark Waldman, and for the past twenty years I have devoted my professional life to the study of human consciousness and mental health, delving deeply into the human brain and how it influences our lives. For nearly a decade, I reviewed nearly 300 academic books for various journals and publications, searching for answers that have haunted philosophers for thousands of years. Ten years ago, when I began to collaborate with Andrew Newberg at the University of Pennsylvania, I turned my attention full-time to neuroscience in my quest to discover the secrets to happiness and success. If I were to summarize everything I've learned from the hundreds of thousands of studies I've reviewed, this is what I would say:

***Life is simple, and satisfaction is easy to attain,  
but the human mind is blind to this fundamental truth.***

Even though we have over 85 billion neurons constantly connecting and disconnecting in our brain each and every day, it turns out that our mind – the part of us that is aware of ourselves and the choices we make – occurs in a very tiny area of our frontal lobes. And yet our thoughts – indeed, even a single word – have the power to change the structure and functioning of many other parts in our brain.

About a year ago, a famous interviewer asked me this question for a national magazine: “What would you say are the ten most mind-blowing discoveries you’ve made about the human brain?”

“Ten?” I thought to myself, “I could think of a hundred!” But then I got tongue-tied and mumbled something about neuroplasticity, cognitive biases, synaptic resonance, and neural dissonance. Rather than pouring out more neurobabble, I told the interviewer that I wanted to think more deeply about the question, and that is exactly what I did. Here is my answer:



**1** **The reality we see is not the reality that actually exists outside of the mind's imagination.** It's a fundamental neurological fact: our senses collect information about the outside world and the brain processes it in ways to enhance our survival.

As you go up the evolutionary ladder, brains become more complex and more sensory organs are built around it: eyes, ears, noses, tongues, etc. Each one of these specialized organs responds to the world in a different way. Our eyes, for example, react to light waves that stimulate retinal color cones, and this information is relayed to our visual cortex where imaginary colors are encoded with word-based cues for later identification. But the part of our brain where we "see" the world is in our frontal cortex, and very little information is sent to it by our visual centers.

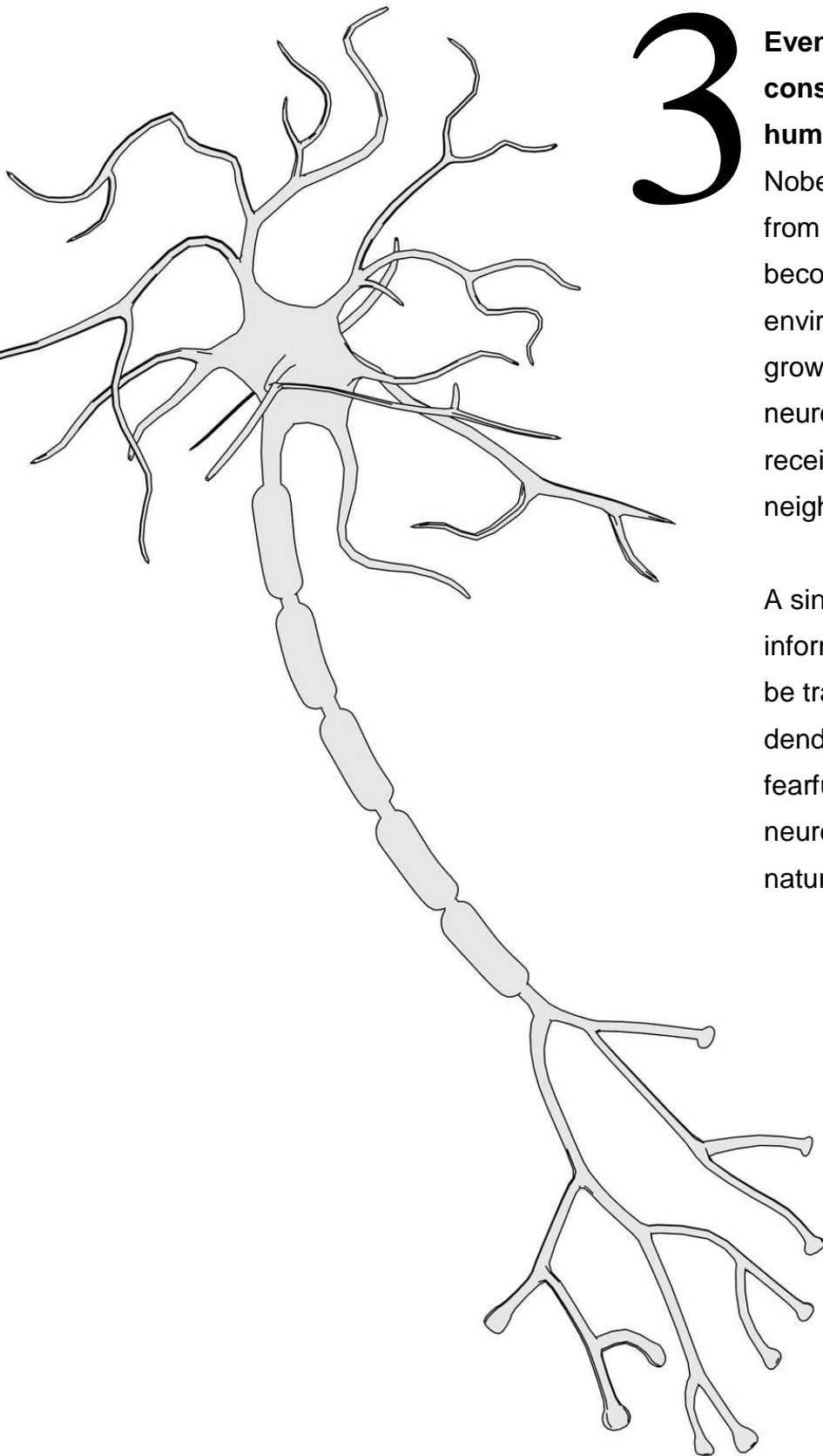
What we see is more like a movie that blends light waves and sound waves and inner emotional experiences into a story that is far removed from the reality that actually exists. All neuroscientists agree with this premise, which is why they love to study optical illusions.



# 2

**Consciousness is created in the brain the moment we wake up and voluntarily move our body.** For decades, behaviorists didn't want to deal with the mind or the notion of consciousness, but we now know that dopamine – a pleasure chemical – gets released from the motivational center located deep in our ancient brain. The chemical stimulates tiny areas in our frontal lobe – right above our eyes – which makes us aware of the outside world.

If the sounds, sights, smells, and sensations are pleasurable and interesting, this tiny bit of consciousness (which most neuroscientists now attribute to all mammals and many other living organisms) pushes us to move toward that object of our interest. If the sensation is unpleasant, the fear and pain centers in our brain are triggered and we'll involuntarily retreat from the world.



# 3

**Even a single neuron has qualities of consciousness that we attribute to human beings.** Eric Kandel won the Nobel Prize for showing that a nerve cell from a sea slug can be trained to become more curious about the environment. When this happens, it grows new axons and dendrites from the neuron's body, allowing it to send and receive more information to other neighboring cells.

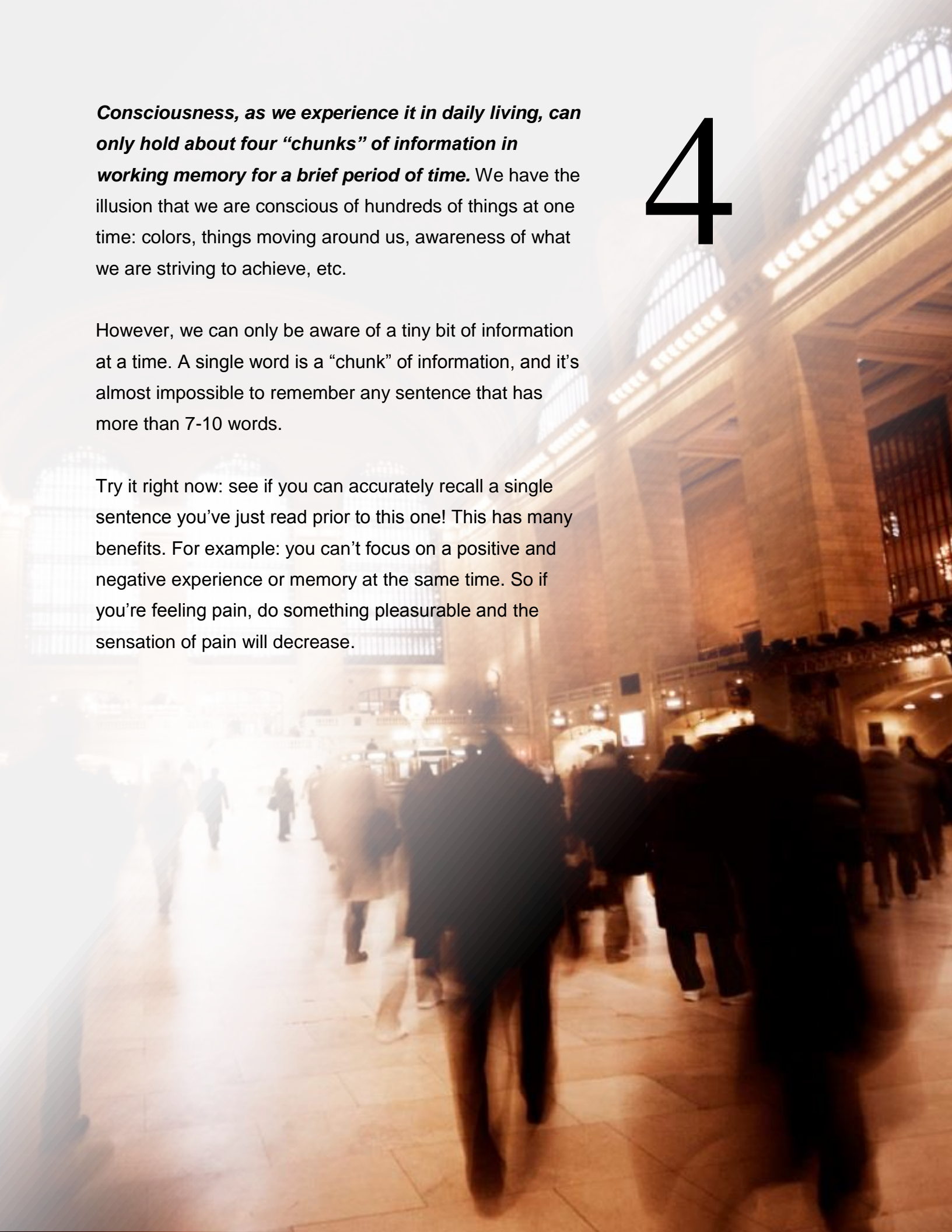
A single neuron can learn and store that information into memory, and it can also be traumatized, causing it to retract its dendrites and axons as it becomes more fearful about the world. Here, in a single neuron, we can begin to understand the nature of motivation and anxiety.

***Consciousness, as we experience it in daily living, can only hold about four “chunks” of information in working memory for a brief period of time.*** We have the illusion that we are conscious of hundreds of things at one time: colors, things moving around us, awareness of what we are striving to achieve, etc.

However, we can only be aware of a tiny bit of information at a time. A single word is a “chunk” of information, and it’s almost impossible to remember any sentence that has more than 7-10 words.

Try it right now: see if you can accurately recall a single sentence you’ve just read prior to this one! This has many benefits. For example: you can’t focus on a positive and negative experience or memory at the same time. So if you’re feeling pain, do something pleasurable and the sensation of pain will decrease.

4





# 5

**Memories are not real.** This may seem obvious, but when we're dealing with negative emotions, fears, worries, and doubts, it's essential to remember that the feeling has less to do with the present moment than we may think.

The brain has a preference to embed negative memories (another mind-blowing fact that most people don't know about) because the organism needs to respond to future threats faster than our conscious minds can respond. When a real emergency takes place – like someone driving their car into your lane – the consciousness in your frontal lobes is turned down so that your instinctual reactivity can take evasive action. When people say “everything seemed to slow down,” they were experiencing the slowing of everyday consciousness as a more ancestral form of awareness took over the body's control.

However, when there is real threat, the brain still will respond to a negative memory as if it were a threat that was occurring in the present moment.

The more you ruminate on the possibility that something awful may happen, the more your brain releases stress chemicals to prepare the body for that famous “fight-or-flight” response. But then your brain sees that there's no real threat. The result: confusion and the release of more stress neurochemicals. If you don't interrupt this nasty problem, you'll damage many parts of your brain. Memories, by the way, are very inaccurate, and each time they are recalled they are slightly changed. Autobiographical memories are particularly prone to distortion.



# 6

***You need to practice a 5:1 “Positivity Ratio” if you want to build optimism and resilience to stress.*** This profoundly important discovery put the field of Positive Psychology on the map. Neurologically, your right prefrontal cortex constantly generates a stream of negative thoughts and feelings. Your left prefrontal lobe is more optimistic and is designed to make decisions that improve your success at achieving goals you desire.

Since consciousness is limited, you have a choice: you can ruminate on negativity or focus on solution-based goals, but you can't do both at the same time. Fredrickson, Gottman, and Losada independently came to the same conclusion when they counted the number of positive and negative comments and facial expressions made by couples or by board members. If the ratio of positive thoughts to negative thoughts falls below 3:1, those are the relationships and businesses most likely to fail. The most successful couples and corporations were those where everyone involved generated more than a 5:1 positivity ratio.

Why does a person have to consciously create more positive thoughts and feelings? To overcome the brain's propensity to turn negative experiences into memories. The great news: you can easily train your brain to interrupt negativity and generate optimistic thoughts.





# 7

**Our beliefs shape our reality more than our sensations, and they govern nearly every aspect of our lives.** Our memories form the basis of habitual behavior and they also form the foundation of our belief systems. A belief is a thought process – an assessment of the world and the value we place on a behavior or ideal. The more we repeat a certain thought, the more “real” that thought becomes. Because everything we believe in also has a corresponding non-belief, the brain does something odd. It rejects any information, or anyone, that interferes with that belief. It’s a natural neurological process and it explains why human beings are so prone to prejudice. The moment we identify ourselves with one group (political, religious, social, or even a sports team) the less respect we show toward people who are members of different groups. We need to remind ourselves that our labels – our beliefs, our memories, even our perceptions of the world – are not real. Instead they are arbitrary categories that our brain uses to organize the sensations coming in from an unknown world.



# 8

**Pleasure is one of the most important sensations for maintaining physical health, emotional balance, and business success.** Compared to other animals, we are the least sensual mammals on this planet, but when it comes to building self-confidence and self-esteem, we need to nurture ourselves. Stroking one's palms can eliminate performance anxiety, slowly brushing one's arms decreases negative emotions, and engaging in pleasant physical activity improves work productivity. Pleasure releases dopamine, and dopamine motivates us to work harder, and all you have to do is to slowly stretch your arms, neck and torso two or three times an hour for 10 seconds.

**Daydreaming and mind-wandering are essential for learning and maintaining a healthy brain.**

Consciousness involves a highly focused and concentrated form of attention, but the neurochemicals involved in hard work are quickly expended. If you take a couple of “daydreaming” breaks each hour – just closing your eyes and letting your thoughts and feelings wander to wherever they want to go – you’ll feel completely refreshed after a minute or two.

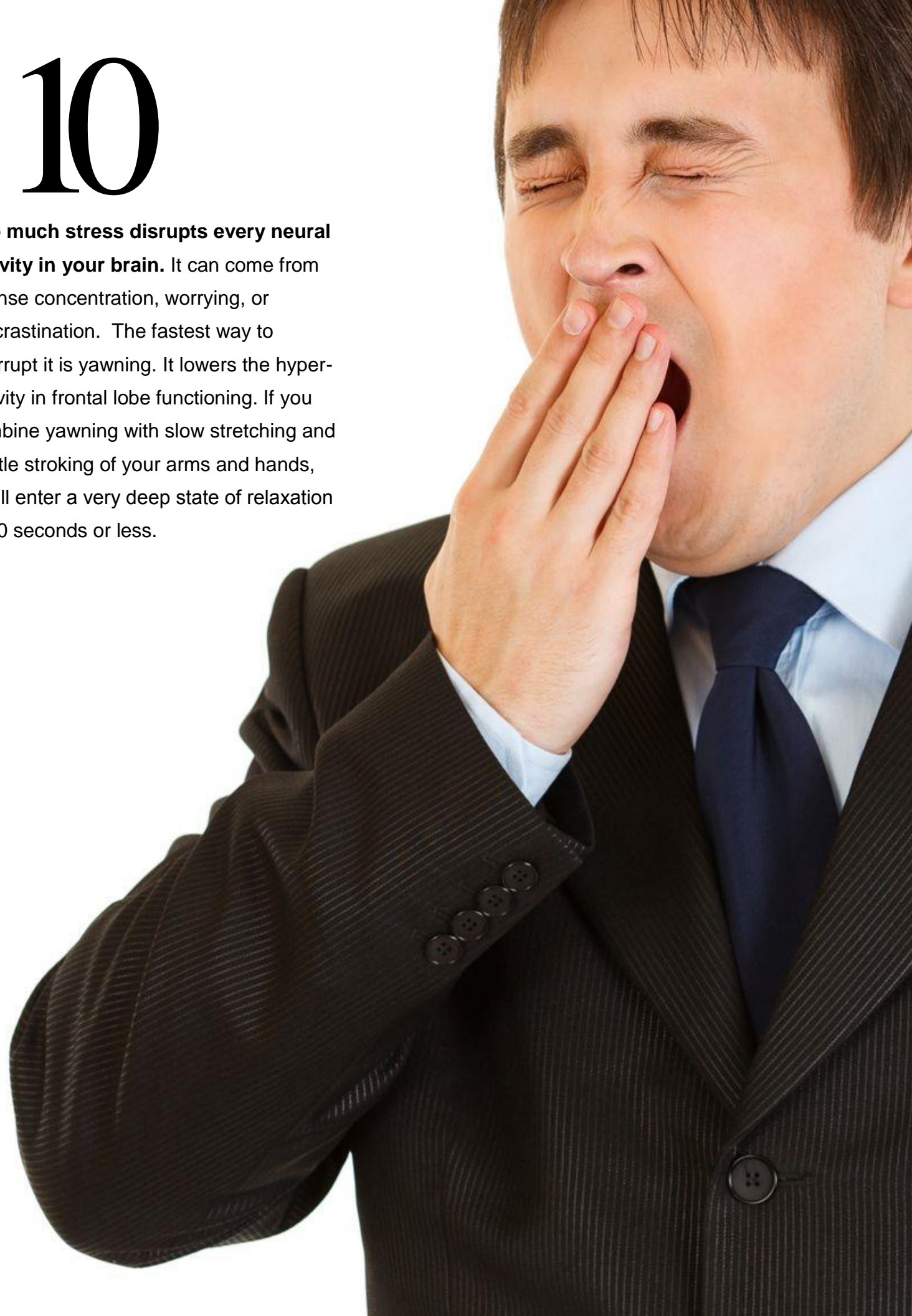
Daydreaming is an essential process for encoding new information into long-term memory, and it also stimulates the creativity circuits in your frontal lobes.

9



# 10

**Too much stress disrupts every neural activity in your brain.** It can come from intense concentration, worrying, or procrastination. The fastest way to interrupt it is yawning. It lowers the hyperactivity in frontal lobe functioning. If you combine yawning with slow stretching and gentle stroking of your arms and hands, you'll enter a very deep state of relaxation in 60 seconds or less.



As I said earlier, I can easily come up with dozens of other “mind-blowing” facts that neuroscience has uncovered. For example, if you continuously repeat a single word that has deep value to you, you can turn on 1200 stress-reducing genes. If you visualize your goal with clear images, it will be easier for your brain to accomplish it. And if you know what type of long-term work or project would bring you satisfaction, and can commit yourself to it, you’ll build a sense of life-satisfaction that will reduce depression and anxiety.

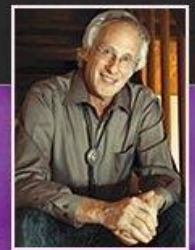
In business, when you reflect on your inner values several times throughout the day, you’ll eliminate most of your daily stress. When you speak slowly and briefly, you’ll influence more people on your team. And if recall a pleasant memory, it can generate a “Mona Lisa” smile on your face that instantly triggers neurological trust.

One of the most powerful strategies I’ve developed grew out of our brain-scan research on meditation. It involves creating a C.R.A.P Board (which stands for conflicts, resistances, anxieties, and other problems) on which you list all of your weaknesses, worries, and fears. You fill up an entire page, and then you begin to gaze at your list as you focus on your deepest values and recall pleasant and loving memories from the past. In less than ten minutes, your conscious mind disconnects from the emotional memories tied to the words you wrote on your C.R.A.P. Board. Then all you have to do is post it near your workplace. But don’t throw it away. If you do, your right prefrontal cortex will start to worry about the things you put on the list!

We’ve taken our neuroscientific discoveries – and the 50+ strategies I call NeuroWisdom – and brought them into classroom environments where we have documented improvements in the quality of work, the quality of interpersonal dialog, and the overall quality of life. They can be used to build cooperation with others and eliminate conflicts before they even begin, and they can be used to boost the immune system of the body, helping to fight off disease and literally add additional years to life.

But perhaps most important, we can use our thoughts to shrink parts of the brain that generate destructive emotions and to strengthen some of the newest evolutionary areas that help us to feel empathy and compassion for others. We become more generous and less greedy as we learn how to tap into the intuitive wisdom of the brain where problems can be solved with ease. NeuroWisdom is a gentle form of enlightenment which allows us to glimpse a deeper truth about the reality that extends beyond the consciousness of our remarkable imaginative brain!

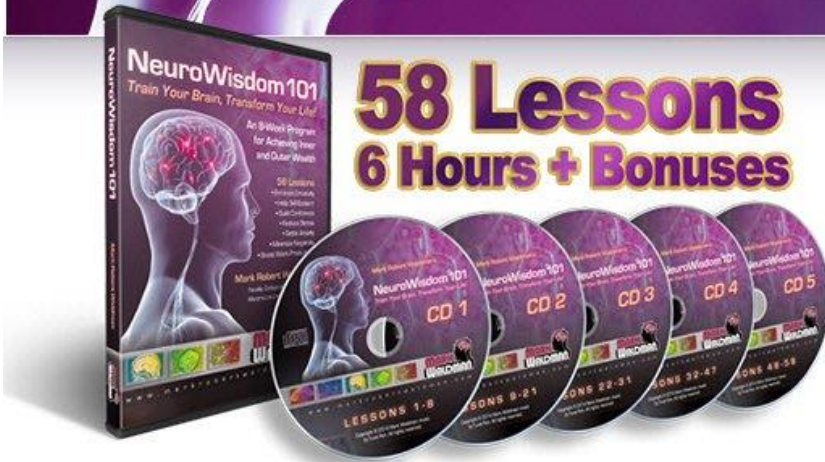
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