

SUMMARY

MY STROKE OF INSIGHT

JILL BOLTE TAYLOR



Summary of “My Stroke of Insight” by Jill Bolte Taylor

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A Brain Scientist’s Personal Journey

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Introduction

On December 10, 1996, Jill Bolte Taylor experienced a rare form of stroke in the left hemisphere of her brain. A major hemorrhage, due to an undiagnosed congenital malformation of the blood vessel in her head, erupted unexpectedly. Within just four hours, her mind completely deteriorated, and she became unable to walk, talk, read, write, or recall any of her life. She felt her spirit surrender to death, but after a grueling eight years, Bolte Taylor made a full recovery. Now, she's here to tell her personal experience of achieving insight and developing inner peace through accessing her right hemisphere's consciousness. Additionally, Bolte Taylor tells about her fascination with the brain as well as what the stroke taught her about the brain. As a neuroanatomist, she explains just how the stroke led to a step-by-step deterioration of her cognitive abilities and how she successfully recovered. Ultimately, she explains that by the end of the morning of her stroke, Bolte Taylor's consciousness had shifted into a perception that was *one* with the universe. Since then, she has come to understand how we are capable of having a "mystical" or "metaphysical" experience that relates to achieving inner peace. You too can experience the same inner peace - without having to experience a stroke! So if you're ready for the journey, then let's begin.

Bolte Taylor Became Interested in the Brain Early in Life

Growing up in Terre Haute, Indiana, Bolte Taylor grew up alongside one of her older brothers with the brain disorder schizophrenia. It was her brother's way of experiencing reality that led Bolte Taylor to become fascinated with the human brain at an early age. She wondered how she and her brother could share the same experience but walk away with completely different interpretations of what had just happened. This difference in perception, information processing, and output motivated her to become a brain scientist.

Bolte Taylor craved an understanding of what “normal” was at the neurological level, so she began her academic journey at Indiana University in Bloomington, Indiana in the late 1970s. At the time, the subject of neuroscience was still relatively new so the IU campus didn't yet offer neuroscience as a formal area of specialization. So she studied both physiological psychology and human biology to learn as much as she could about the brain. She then began a real job in the world of medical science when she became a lab technician at the Terre Haute Center for Medical Education (THCME). For two years, Bolte Taylor spent her time in the medical human gross anatomy lab and the neuroanatomy research lab working under Dr. Robert C. Murphy, who fostered her love for dissecting the human body.

She then spent the next six years enrolled in the ISU Department of Life Science Ph.D. program. In 1991, she received her doctorate and began teaching Human Gross Anatomy, Human Neuroanatomy, and Histology at the medical school. It was during her studies in 1988 that her brother was officially diagnosed with schizophrenia. She aimed to understand why she was capable of taking her dreams, connecting them to reality, and making those dreams come true. Her brother, on the other hand, failed to connect his dreams to common reality and, instead, they became delusions. After

earning her doctorate, she was then offered a postdoctoral research position at Harvard Medical School in the Department of Neuroscience.

In 1993, Bolte Taylor landed her dream job of working in the lab of Dr. Francine M. Benes at McLean Hospital. Dr. Benes is a world-renowned expert in the postmortem investigation of the human brain as it relates to schizophrenia. Francine, whom Bolte Taylor considers the “Queen of Schizophrenia,” is an amazing research scientist, and as she studied the brains of those diagnosed with schizophrenia alongside Dr. Benes, she finally felt a sense of purpose. On her first day, however, Bolte Taylor learned that there was a shortage of brain donations from families of individuals with mental illness. Having just spent the previous week at a conference for NAMI, the National Alliance on Mental Illness, where she met approximately 1,500 other families like hers, she was surprised to hear about the lack of donations.

She decided this was merely a public awareness issue, so the following year in 1994, Bolte Taylor was elected to the National NAMI Board of Directors. Of course, the basis of her platform was to raise awareness about the value of brain donations and the shortage of psychiatrically-diagnosed tissue available for scientists to do their work. She called it the “Tissue Issue,” and at just 35-years-old, she became the youngest person elected to the Board of Directors. She spent her time raising awareness about brain donations while also becoming the *Singin’ Scientist*. To ease the tension of asking for the brains of her audience members, she sang The Brain Bank jingle which made it okay to communicate her message without completely scaring them away!

Meanwhile, Bolte Taylor was also researching with Dr. Francine Benes looking to create a protocol where they could visualize three neurotransmitter systems in the same piece of tissue. Neurotransmitters are the chemicals with which brain cells communicate. The ability to visualize three systems in the same piece of tissue allowed them to better understand how these systems worked together. This would eventually allow them to create better medications for those in need. It was this work

that won Bolte Taylor the prestigious Mysell Award from the Harvard Medical School Department of Psychiatry in 1996. Bolte Taylor was thriving in her career and helping her NAMI family when the unthinkable happened. On December 10, 1996, she awoke to discover she was experiencing a brain disorder of her own.

The Two Types of Strokes

Before we get into Bolte Taylor's experience, it's important to learn what a stroke is. You likely know that a stroke involves the brain, but it is also the number one disabler in our society and the number three killer. Strokes occur four times more frequently in the left cerebral hemisphere, which is why many stroke-sufferers lose their ability to create or understand language. Lastly, the term stroke refers to a problem with the blood vessels carrying oxygen to the cells of the brain, and there are essentially two types: ischemic (ih-skee-mik) and hemorrhagic (hem-o-radg-ik).

According to the American Stroke Association, ischemic stroke accounts for about 83% of all strokes. In this type of stroke, blood clots in the artery, preventing oxygen from flowing into the brain's cells and neurons. You see, arteries carry blood into the brain and their shape becomes smaller and smaller as they travel further away from the heart. With an ischemic stroke, a blood clot travels into the artery until the tapered diameter of the artery becomes too small, blocking the flow of oxygen-rich blood to the cells beyond the point of obstruction. As a result, brain cells become traumatized and often die. Unfortunately, neurons do not regenerate and dead neurons cannot be replaced; therefore, the function of deceased cells may be lost permanently. Over time, other neurons may adapt to carry out their function, but every brain is unique, making recovery unique for everyone.

Hemorrhagic stroke occurs when blood escapes from the arteries and floods the brain. Only 17% of all strokes are hemorrhagic. When this kind of stroke happens, blood enters the brain and becomes toxic to neurons when it comes in direct contact with them. An aneurysm can also form when there is a weakening in the wall of a blood vessel that will cause the vessel to balloon out. As a result, the weakened area fills with blood and can rupture, spewing large volumes of blood into the skull.

An even more rare form of hemorrhagic stroke is called an arteriovenous malformation or AVM. This is a congenital disorder in which an individual

is born with an abnormal arterial configuration. In the case of AVM, an artery is directly connected to a vein with no buffering capillary bed in between, a capillary bed acts as a buffering system between the high-pressure arteries and the low-pressure veins. Over time, the vein can no longer handle the high pressure from the artery, and the connection breaks, resulting in blood spilling into the brain. AVM accounts for only 2% of all hemorrhagic strokes, but it is the most common form of stroke that strikes people between the ages of 25 and 45. Bolte Taylor was only 37 when her AVM blew. While the mechanical nature of strokes is similar, no two strokes are the same. No two brains are identical in structure, connections, or the ability to recover. This also means that the symptoms of a stroke can be different for everyone. Bolte Taylor uses the acronym STROKE to remember the warning signs:

S = SPEECH, or any problems with language

T = TINGLING, or any numbness in the body

R = REMEMBER, or any problems with memory

O = OFF BALANCE, problems with coordination

K = KILLER HEADACHE

E = EYES, or any problems with vision

The Differences Between the Left and Right Hemispheres of the Brain

Before we move forward with Bolte Taylor's experience, it's also important to understand more about the brain, specifically your left and right hemisphere. Scientists have been studying the human cerebral cortices for over 200 years. It was in the late 1800s when Arthur Ladbroke Wigan witnessed the autopsy of a man who could walk, talk, read, write, and function like a normal man. However, when he examined his brain, Wigan discovered that the man only had one cerebral hemisphere. As a result, Wigan concluded that people with two hemispheres have two minds and so he created the "Duality of the Mind" theory.

Our right hemisphere, for instance, controls our sensory aspects like sight, smell, taste, and sound. It then combines these and creates a master collage of what you are experiencing moment by moment. Our right mind is also responsible for remembering isolated moments with incredible clarity and accuracy. It's the reason many of us can recall where we were or how we felt during moments like the assassination of President Kennedy or the collapse of the World Trade Center. Additionally, the right mind isn't involved with time, it solely focuses on the present moment. This is why our right mind is spontaneous, carefree, and imaginative. This is also the reason our right brain can perceive the bigger picture of how everything in this world is related, and how we all join together to make up the whole. It's also responsible for our ability to be empathetic and to walk in the shoes of another and feel their feelings.

On the other hand, the left hemisphere focuses on language, numbers, patterns, and categories. It processes information differently by taking those rich and complex moments created by the right hemisphere and stringing them together in a timely succession. By linearly organizing details, our left brain manifests the concept of time and divides moments into the past, present, and future. It is the left brain that allows you to look at your shoes and socks and comprehend that you must put on your socks

before your shoes. Additionally, it builds an understanding of everything using deductive reasoning, such as “If A is greater than B, and B is greater than C, then A must be greater than C.”

While the two cerebral hemispheres process information in unique ways, they work together in just about every action we take. For example, when it comes to language, our left hemisphere understands the details making up the sentence and the meaning of the words. It understands what letters are and how they fit together to create words and meaning. Our right hemisphere complements the left by interpreting non-verbal communication. Our right mind evaluates the subtle cues of language, such as tone of voice, facial expression, and body language. This means that those with left hemisphere damage typically cannot create or understand speech because the cells in their language centers have been injured. On the other hand, if someone has damage in their right hemisphere, they may not be able to determine the emotional content of a message and interpret everything literally.

The Morning of the Stroke

At 7:00 a.m. on December 10, 1996, Bolte Taylor woke up to a sharp pain piercing her brain behind her left eye. She switched off her alarm and thought about how strange it was to awake with such striking pain since she hardly ever gets sick. She felt sensitive to light, so she stumbled to the bedroom window and closed it to block the stream of light from streaming into her eyes. Despite the pain she was in, she decided exercise might help get her blood flowing and dispel the pain.

As she hopped onto her “cardio-glider,” she felt a powerful and unusual sense of dissociation swarm her. She questioned her well-being, her thoughts seemed lucid, and her body felt irregular. As she watched her body move on the machine, she felt strangely detached from her normal cognitive function. She was certain that she wasn’t dreaming, yet she describes feeling trapped inside the perception of meditation that she could neither stop nor escape. She simply felt dazed and her head continued to pound. Perhaps exercise wasn’t such a great idea.

Feeling a bit nervous, she climbed off the machine and bumbled her way to the bath. She felt her movements no longer become fluid; instead, they seemed jerky and there was nothing graceful about them. She was losing her balance and her mind seemed preoccupied with keeping her body upright. As she turned on the faucet, she became startled by the sudden surge of water into the tub. This amplification of sound brought Bolte Taylor to the realization that she was having problems with coordination and equilibrium. For the first time, she considered the possibility of a major neurological malfunction that was life-threatening.

As her brain searched for an explanation for what was happening, she noticed that the constant brain chatter in her mind was no longer a constant flow of conversation; instead, her verbal thoughts became inconsistent, fragmented, and interrupted by periods of silence. Even worse, the harder she tried to concentrate, the more fleeting her ideas

seemed to be. She became detached from her life and was finding an increasing sense of peace and calm. In the absence of her brain chatter, her memories of the past and her dreams of the future evaporated with them. She was alone.

The growing void was seductive as she welcomed the reprieve that the silence brought. However, the water pounding on her body startled her back into reality, and she quickly understood that she was in grave danger. She decided to get ready for work, and as she did so, her body felt unsteady and heavy. Her motions were slow and drawn-out. She then started to think about going to work and the route to get there. Could she even drive? At that moment, her right arm dropped completely paralyzed against her side. She recognized then that she was having a stroke. She felt strangely euphoric and simply wanted to lie down and relax. But her cognitive mind kept telling her that if she lied down, she would never get up.

As her left hemisphere was failing her, Bolte Taylor struggled to call for help. She simply tried to sit and wait for a moment of clarity that would permit her mind to connect her thoughts and execute a plan. She sat thinking, "What am I doing? Call for help. Call for help. I'm trying to call for help." In a moment of clarity, she decided to call her colleagues at work, but her mind wouldn't recall the number for her. She stared at the keypad of the phone hoping the numbers would come to her. Suddenly, four digits appeared in her mind...2405. She picked up a pen with her non-dominant left hand and jotted down the images in her mind. The process of calling for help took her about 45 minutes, and during her next moment of clarity, she called her colleague and friend, Dr. Stephen Vincent.

When he answered, she quickly realized that she could no longer understand speech or hardly even speak. She quickly blurted, "This is Jill. I need help!" Of course, it didn't quite come out that way. Instead, it was more just grunts and groans, but fortunately, Steve recognized her voice and understood that she was in grave danger. Finally, Bolte Taylor could relax as she understood there was nothing more she could do to save herself.

The Beginning of Bolte Taylor's Road to Recovery

In the first 48 hours in the hospital, Bolte Taylor was given numerous neurological exams. During these examinations, she shifted entirely to her right hemisphere as her left hemisphere became a pool of blood. With this shift, she became empathetic to others. She couldn't understand what they were saying, but she could read their facial expressions and body language more strongly than she ever could in the past. Even more, she realized that some people brought energy while others took it away.

For instance, one nurse was incredibly attentive to her needs, ensuring she was warm enough, hydrated enough, or in pain. This nurse made her feel safe by making eye contact and providing her with a healing space. Another nurse, however, never made eye contact and shuffled her feet as though she were in pain. She brought Bolte Taylor a tray with milk and jello but failed to realize that her hands and fingers couldn't open containers. This nurse was oblivious to her needs and didn't care to connect with her patient. As a result, Bolte Taylor did not feel safe in her care. Dr. David Greer was kind, gentle, and sympathetic to her situation. He took the time to pause his day and softly speak to her. While she could not understand his words, she understood that he was caring for her. She felt respect and kindness towards him.

Bolte Taylor quickly realized that rehabilitation was completely in her control, it was her decision to show up or not. Those that came to her with patience and kindness, she put forth the effort to connect and make progress. Those that came in solely to sap her energy were ignored as she tried to protect herself from them. Deciding to recover, however, was an incredibly difficult one. She enjoyed the bliss of drifting in and out of the eternal flow; it was beautiful, peaceful, and free. But three days after her stroke, her doctors looked at the results of her angiogram, the X-ray, to see the blood vessels in the brain to identify the type of stroke. For Bolte Taylor, she had suffered a hemorrhagic stroke caused by an undiagnosed

arteriovenous malformation. If action wasn't taken soon, she could suffer another stroke, and the next time, she might not be so lucky.

Dr. Ogilvy described the problems with the blood vessels in her brain and suggested that Bolte Taylor should have a craniotomy to remove the remnants of the ATV and a clot the size of a golf ball. After some convincing, she agreed to have the surgery. However, she needed to get her body strong enough over the next few weeks to survive the dangerous, invasive surgery. She learned that she needed to put forth the effort if she wanted to make any progress. For example, one day she rocked back and forth several times before being able to roll upward. In her stage of rocking, she recognized that rocking was the only activity that mattered. She simply focused on breaking down her actions into smaller steps; otherwise, she would have become disappointed and given up.

On her fifth day, it became time for Bolte Taylor to go home and continue working on her strength to endure surgery. A physical therapist taught her how to climb a stair, with support, and she was released into the care of her mother.

Bolte Taylor's At-Home Recovery

While in the care of her mother, Bolte Taylor was essentially like an infant again, learning virtually everything from scratch. How to walk. How to talk. How to read, write, put a puzzle together, etc. To recover, she would need to go through each motion step-by-step, mastering each step before moving on to the next. She had learned to rock and then roll before sitting up, she then had to sit up and rock forward before she could stand. She had to stand before she could take the first step, and she had to be relatively stable on her feet before she could climb a stair by herself. Most importantly, she had to be willing to *try*. She had to convince her brain that she needed this recovery.

Her mother began the process of walking Bolte Taylor back and forth between her bed and the bathroom. After that exercise, she would sleep for six hours. That was all she could do for the first few days! Once she mastered the trek to the bathroom, she headed for the living room couch where she could sit up and eat food. Of course, she had to re-learn how to use utensils too. But the key to her successful recovery was her mother's patience. She would constantly remind her of her small successes and understood the importance of celebrating all her accomplishments. Stroke survivors oftentimes complain about no longer recovering, but perhaps the real problem is that no one is paying attention to the little accomplishments that are being made.

Eventually, Bolte Taylor began completing children's puzzles and games to help stimulate her brain. With her first puzzle, her mother explained how the puzzle would fit together to create an entire picture. Her first task was to turn all the pieces right side up. Bolte Taylor replied, "What is right side up?" Her mother showed her and once she understood the difference, she inspected each piece until all 12 pieces were right side up. She did it! Next, she needed to pick out which pieces had an edge. After explaining what an edge is, Bolte Taylor successfully separated all the edges. She was then instructed to take the "outsy" pieces and hook them together with the "insy"

pieces. Simply holding the pieces took extreme effort, and she was failing to put the pieces together.

Her mother finally told her, “Jill, you can use color as a clue.” Suddenly, a light bulb went off in her head, and she could suddenly see color again! At that point, she was so worn out that she had to sleep before attempting the puzzle again. The next day, she went back to that puzzle and put all the pieces together using color as a clue. Bolte Taylor is still fascinated that she could not see colors until she was told that color was a tool that she could see. But perhaps the hardest thing that she had to re-learn was reading. To her, she had no recollection that reading was something she had ever done before, it was simply an abstract idea that she couldn’t believe anyone had ever thought of.

Her mother sat down with her with a book titled *The Puppy Who Wanted a Boy*, and together they attempted to make sense of the written word. To Bolte Taylor, an “S” was a squiggle that made no sound and certainly didn’t make an “SSSS” sound. She then had to understand that every squiggle had a name and an associated sound. Those combinations of squiggles then fit together to form special combinations of sounds, like “sh” and “th.” When you string all those combinations together, they make a word, and that word then has a meaning! Although it was a struggle, she began to make obvious progress and continued to celebrate her accomplishments, and eventually, she became ready for surgery.

To Experience Nirvana and Make a Full Recovery, Bolte Taylor Needed Support and Sleep

On December 27, 1996, Bolte Taylor marched into Massachusetts General Hospital to have her head cut open. One of the last things she remembers before being knocked out was telling Dr. Ogilvy, “Hey Doc, I’m 37 and single; please don’t leave me totally bald!” After waking up, she discovered that the left third of her head had been shaved and a nine-inch upside-down “U” shaped scar ran from the front of her ear to the back of her head. The good news though? She was able to speak again! It was during her recovery from surgery that Bolte Taylor had several epiphanies about her experience and life in general.

First, she realized what she needed to successfully recover, and that was to be surrounded by those who believed in her recovery and in her success. Recovery was a decision that she had to make a million times a day, and she constantly questioned whether she was willing to give up her newly found bliss to try and understand the complicated external world. In the absence of her left hemisphere, she was left to experience the Nirvana in the consciousness of her right hemisphere. Her stroke of insight was: *“peace is only a thought away, and all we have to do to access it is silence the voice of our dominating left mind.”*

Recovery for her was that she needed people to treat her as though she would recover completely, no matter how long it would take. She then heard doctors tell her, “If you don’t have your abilities back by six months after your stroke, then you won’t get them back!” This, however, is untrue. She noticed an improvement in her brain’s ability to learn and function for eight years after her stroke, at which point she decided her mind and body were totally recovered. This can be attributed to the plasticity of the brain, and the ability for the brain to change its neural connections and regain

some of the functions she lost. She needed the people around her to believe in the plasticity of her brain and its ability to grow, learn, and recover.

Next, Bolte Taylor needed to rely on the healing power of sleep. For her, sleep was “filling time,” in which her brain could recover from the energy her brain expelled when awake. While awake, her neurons couldn’t keep up with the demand needed of her, and her brain needed to be protected, and isolated from obnoxious sensory stimulation. If she didn’t respect her brain’s need for sleep, her sensory systems would experience pain and she would become both psychologically and physically depleted. As a result, she would have tried less to recover. Sleep helped her recover and gave her the motivation to try harder to succeed.

Bolte Taylor also realized that through her experience, she could help others achieve the peace and Nirvana that she had in the moments following her stroke. Thanks to her stroke, Bolte Taylor was able to explore the world again with a childlike curiosity. In the consciousness of her right mind, she was adventurous, celebrative of abundance, and socially adept. She became sensitive to nonverbal communication, empathic, and accurately decoded emotion. You too can access this part of your mind without going through the experience of having a life-threatening stroke! The first step is to come back to the present moment. To do this, you must consciously slow down your mind by first deciding that you are not in a hurry. “Your left mind may be rushing, thinking, deliberating, and analyzing but your right mind is very m-e-l-l-o-w.”

To unlock her own inner peace, Bolte Taylor looks at how her body organizes information into systems and capitalizes on those already established circuits. Therefore, she pays attention to sensory information as it streams into her body and repeatedly asks herself, “how does it feel to be here doing this?” Begin by simply paying attention to your eating and drinking. Pay attention to the textures of different foods and how they feel in your mouth. What foods would you classify as fun food and why? For Bolte Taylor, she loves chasing around gelatin balls in tapioca pudding or

spaghetti. Essentially, you should get in touch with your senses. What are you feeling? Tasting? Seeing?

For Bolte Taylor, she imagines her mind as a garden, a sacred piece of cosmic real estate that the universe has entrusted her to tend over the years of her lifetime. She consciously chooses to nurture the particular circuits she wishes to grow and prunes back the ones she prefers to live without. It may be easier to nip a weed when it is only a sprouting bud, but with determination and perseverance, even the most overgrown vines can lose its strength and fall to the side by simply failing to give it fuel. Of course, western civilization makes it hard to access the right hemisphere, but the right brain consciousness is eager for us to take the next leap for mankind. We have the power to evolve this planet into a peaceful and loving place. So pay attention to what is going on in your brain, own your power, and show up for your life.

Final Summary

When Jill Bolte Taylor experienced a stroke at just 37-years-old, she had to learn everything again from scratch: how to walk, talk, read, and speak. It was during her recovery, however, that she experienced life in only the right hemisphere. It was a place of peacefulness and tranquility, she didn't care about what people thought of her and the chatter in her brain became silent. Through perseverance and a lot of patience, she was able to make a full recovery. But to this day, she still takes a step to the right and consciously accesses her right brain to feel that sense of calm and peace in today's fast-paced world. Ultimately, experiencing a life-altering stroke allowed Bolte Taylor to find Nirvana and think differently about life.



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