

STROKE RECOVERY **MOMENTUM**

**HOW TO KEEP
MOVING FORWARD**



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Stroke Recovery Momentum: How to Keep Moving Forward

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INTRODUCTION

The summer sun was beating down on me as I left work on a Wednesday afternoon in August, having finished my duties at the skilled nursing facility. As I made my way through the employee parking lot to my truck, I felt the onset of a headache, which wasn't uncommon in those days of 2020, when the COVID-19 pandemic had just begun, causing widespread fear and anxiety. Even though our workplace had managed to remain free of the virus thus far, everyone was still on edge. In an effort to alleviate my discomfort, I decided to try the same neck-cracking technique I had used the previous day and quickly turned my head to the left, feeling a satisfying "pop."

After finishing my dinner that night, I made the spontaneous decision to head to the grocery store, possibly because my headache had subsided. At that time, I had a fascination with pumpkin spice and was determined to find a sugar-free alternative to the coffee creamer I typically enjoyed. I perused the baking and spice aisles until I finally spotted the liquid pumpkin spice bottle on the top shelf. However, as I reached for it, a line appeared in my vision, signaling the onset of an ocular migraine, which I had experienced before. Knowing that prompt treatment could prevent a full-blown migraine, I rushed home and attempted to take Advil while trying to ignore the disorienting aura in my vision.

As I fumbled with a glass of water, my husband called. Josh rarely called me when he was working. It was about 8:00 p.m. and he wanted to tell me about a podcast he had listened to that he thought I might like. I was telling him how I was getting a migraine and that I was afraid of hurting myself if the glass dropped and broke. He was having difficulty understanding what I was saying, so I repeated myself. It didn't help. Then he started asking me weird questions like, "Are you having a stroke? Should we call 911?" I replied "No" to both questions, then he announced he was coming home, which I agreed to. Since he couldn't understand what I was saying on the phone, I thought I would text him. So, I spoke the text to my phone and sent it to him. It still came out jumbled, and Josh says this was when he really started to worry.

I have no recollection of retrieving the Advil, but apparently I did and spilled it all over the counter. The rest of that night is a blur. As I waited for Josh to arrive, I remember sitting on the kitchen floor, though I couldn't recall how I got there. With both hands on the pantry door handle, I tried to pull myself up but failed, and that left me confused. Josh eventually made it home and attempted to convince me that I was having a stroke by performing all the

necessary tests. My left arm wouldn't move, my speech was unintelligible, and my smile was lopsided. However, I refused to believe it, as I was suffering from a brain injury at the time and was not thinking rationally. None of my physical therapist training kicked in, how could it? Portions of my brain were no longer working at that moment.

Josh had had enough and picked me up to put me in the car and take me to the emergency room. He couldn't get the car door open while carrying me, so he put me down and ran next door for help. The neighbors ran over to assist him and they all got me in the car. I remember one other thing from that night: vomiting out the car door. It must have coincided with arriving at the ER. As the story went, Josh asked a gentleman exiting the ER to get some help. The man walked back inside, probably said there's a drunk lady outside, and a nurse casually walked out to us. When Josh yelled, "She's having a stroke!" the nurse ran back inside and quickly came back out with a gurney and a team of people.

What happened next, I can only surmise from the reports, the medical teams, and Josh. I was rushed to get a CT scan, after which they realized not only was I having a stroke, but my right carotid artery had been torn. I was flown by helicopter to a hospital in Denver sixty miles away for emergency surgery to get the clots out and repair my artery. The surgeon was successful at getting much of the clot out and placed a stent to repair my artery. Josh was told I might not wake up for a day or two, so he found a hotel nearby so he could get some sleep.

Both Sides of the Fence

Prior to my stroke, I had worked as a physical therapist for more than ten years, visiting thousands of patient homes and providing rehabilitation to geriatric patients. During this time, I witnessed firsthand the range of impact that a stroke could have on individuals, from loss of limb movement to extended periods of immobility. When I returned to work in October after my own stroke, I discovered that I was able to connect with my patients on a much deeper level, thanks to my personal experience with the mental and emotional impact of living with a chronic and life-altering condition. Upon my return to work in October, I found that my personal experience allowed me to relate to my patients on a much deeper level, providing a level of empathy and understanding that went beyond my technical expertise as a therapist.

On my first day back at work, I saw two patients and felt exhausted. One of my patients during those initial weeks was a fellow stroke survivor who had experienced the same type of stroke that I had, affecting the right MCA (middle cerebral artery). She appeared normal to the average observer, but had lost the ability to construct complete sentences. I asked her if she felt like she sounded normal in her head when she spoke, even if others couldn't comprehend her. This was a question I asked because I had felt the same way the night of my stroke when I

was attempting to communicate with Josh on the phone. Although my inquiry didn't improve her ability to communicate, it let her know that I could empathize with her situation.

As I continued to work with patients, I realized that my approach had shifted towards more conversations focused on empathy and understanding, rather than just exercise routines. My own experience with stroke had given me a newfound perspective and deeper connection with my patients. While exercises are still important, I now believe that having someone to talk to who has been through a similar experience can contribute more towards recovery than just physical therapy.

Where Are the Exercises?

As you glance through the book and realize there are no exercises in it, I understand if you're feeling disappointed. After all, I am a physical therapist, and exercise is a fundamental aspect of rehabilitation. However, based on my experience, patients who prioritize developing a growth mindset and consistently practicing recovery-building habits are the ones who see the most substantial improvement and maintain their progress over time. I could have easily included a chapter of exercises that I've accumulated throughout my career or found online, but that would not have been a comprehensive approach to stroke recovery. So, please keep reading, and I'll share valuable insights on cultivating a successful mindset and developing habits and goals that promote stroke recovery.

According to Carol S. Dweck in her book *Mindset: The New Psychology of Success*, "The view you adopt for yourself profoundly affects the way you lead your life. It can determine whether you become the person you want to be and whether you accomplish the things you value." In this book, I outline some of the most important principles, traits, and strategies to help you adopt a growth mindset and set yourself up for success to maintain your stroke recovery momentum.

Throughout the book, you will find **Neuro Notes**. These are snippets that discuss the principles of neuroplasticity, or rewiring the brain. These principles are key to optimizing our stroke recovery.

CHAPTER 1 - CHOICE

Growing up, I was accustomed to attending church services. I distinctly recall a sermon titled *The most powerful thing you can do*, in which the pastor conducted a poll to see what the congregation believed the answer might be. Given the context, suggestions included “pray,” “worship,” “serve,” and “give.” After the responses subsided, the pastor paused then revealed the answer: before engaging in any of these actions, one must first choose to do so.

Consider this: the most potent action you can take is to make a choice. You decide when to wake up, what to eat, and whether to exercise. The possibilities are endless. Making a choice is an action that sets everything in motion.

One of the challenges we face today is the overwhelming number of choices available to us. Barry Schwartz, in his book *The Paradox of Choice*, argues that “more is less.” With too many options, we can experience analysis paralysis and remain unable to make a decision. According to Schwartz, the abundance of choice has a cost, resulting in poor decisions, anxiety, stress, dissatisfaction, and sometimes depression. It is fair to say that feeling stuck is an unpleasant experience. However, sometimes we may be under the illusion that we are stuck when we are just one choice away from generating momentum.

If choosing is the most potent action we can take, how can we make it work *for* us instead of *against* us? Interestingly, making a choice may seem insignificant and trivial at the time. As Jeff Olson explains in his book *The Slight Edge*, success comes from doing the small things every day that nobody else notices. These things are easy to do, yet successful people take action while unsuccessful people only think about them. People who lose weight successfully are not the ones who sign up for the diet but only look at the plan; instead, they are the ones who follow and implement the plan. People who succeed in school are the ones who choose to study and spend time in the library or study hall. Those who successfully recover from a stroke are the ones who educate themselves and consistently apply the principles they learn.

As we've seen, the power of choice can either result in anxiety, stress, or depression, or it can lead to success, positive changes, and greater fulfillment. Let's concentrate on the latter. What kinds of choices lead to success, positive changes, and greater fulfillment? Choices that align with your goals and core values, choices that embody a positive mindset, and choices that are sustained over an extended period of time. Committing to making those choices consistently is required, even when no one else is watching. And the most challenging aspect? Taking the first step.

It takes a whole lot of energy to get moving. Think of a space shuttle. It uses the vast majority of its fuel just getting out of Earth's gravitational pull. But once it does, it can easily glide to its destination with a few tweaks along the way. Not to mention the payoff of the beautiful views of Earth from space. So if we pay the price of hard work in order to start the boulder down the hill, once it gets rolling, it's hard to stop.



Refraining from comparing ourselves to others can be a challenge at this stage. Social media platforms like Facebook and Instagram can make us feel like other people's "boulders" are more impressive or important than our own. However, I've found that focusing on our own values and what gives our life meaning can make us happier. Our unique set of values guides us towards our purpose. If you're unsure of what your values are, think about what bothers you the most. I get upset when I see injustice, because justice is a value of mine. I get upset when people around me aren't loyal, because loyalty is a value of mine. As someone in stroke recovery, I value my ability to write legibly, which is something I'm currently working on since I need this skill for work.

However, our society is obsessed with instant gratification, always searching for lucky breaks and breakthroughs. Yet, the reality is that none of these things just happen out of nowhere. As Olson states, "The truth of breakthroughs and lucky breaks is that, yes, they do happen - but they don't happen out of thin air. They are grown, like a crop: planted, cultivated, and ultimately harvested. And that second comma, the one between cultivate and harvest, often represents a long period of time." That's the second part. If we are willing to put in the hard work of getting started, we need to stay consistent over time in order to reap the harvest. The likelihood of recovering my ability to write legibly due to "spontaneous recovery" is very low at this point. It is only going to improve with consistent practice over time.

Neuro Note

The neuroplasticity principle of relevance was key to my handwriting practice. Writing is necessary for my job. Sure, our documentation is electronic, but I need to write notes to other departments and coworkers, and write up assessments to go directly in a medical record. If work hadn't motivated me to continue writing, I'm not sure I would have done it. Relevance and motivation are key factors in neuroplasticity, so work on activities that fill that criteria for you.

If we return to my personal stroke story, my body had a choice to make. If you recall, I left off at the part where the neurosurgeon told my husband I may not wake up for a day or two. This was because after a tear in my carotid, my body had to decide if it was safe for that artery to continue functioning or not. There may be some scientific indications as to which direction the body will go, but I am unaware of them, and the neurosurgeon didn't seem to know what would happen either. If my body determined it was no longer safe for my right carotid artery to function, it would turn it off. No one knew what would happen to me if that was the route it took. In theory, my body would start creating other circulatory paths to compensate for the loss. If that wasn't established fast enough, I might not survive.

My body *did* choose to turn off my right internal carotid artery. Spoiler alert: I lived. Given that no one knew it was already over ninety percent blocked, my theory is that my body had already been creating other blood flow paths over time. It didn't need to suddenly compensate. You just wouldn't want to be my partner in CPR class, feeling for a pulse that isn't there.

My body's response to my carotid artery being shut down was automatic. It wasn't something I had to consciously decide. I find the choices I have to make that are conscious to be the more difficult ones. If my head isn't in the right place, they are even more challenging. Our mindset affects our choices more than we may realize. Having strong mindset skills is key to maintaining stroke recovery momentum and wielding our most powerful tool: choice.

CHAPTER 2 - GRIT

“Fall down seven times, get up eight.”
Japanese proverb

Upon entering the room, I noticed a man seated in the recliner. Having already completed my chart review, I recognized that he had suffered a stroke, and it was not his first. This gentleman wore a Vietnam veteran hat and had a prosthesis on his right leg, presumably due to a below-knee amputation. His primary objective was to walk again, even if it meant relying on a walker.



In Angela Duckworth's words, grit is "passion and perseverance for long-term goals." I believe this concept captures the essence of stroke recovery. Regardless of stroke type, age, or gender, one characteristic unites those who have made the most progress in their recovery: grit. $\text{Passion} + \text{Perseverance} + \text{Long-Term Goal} = \text{Grit}$. Let us now examine each component of this formula in more depth.

Gritty passion involves more than just caring about something; it entails discovering what you are genuinely committed to and then dedicating yourself to it for years, decades, or a lifetime. It requires a deep understanding of your values and purpose. Those with grit do not need to be told to take action; they possess an intrinsic drive that propels them forward each day. Passion is about comprehending your why. Why do I need to do those exercises again today? Why do I need to practice my handwriting?

To be frank, some moments we question our ability to persevere, occasionally for days or even weeks. In her book, *Getting Grit: The Evidence-Based Approach to Cultivating Passion, Perseverance, and Purpose*, Caroline Adams Miller suggests creating an "if-then" contract with oneself to increase the odds of accomplishing tough goals, threefold. For example, "If I complete my handwriting practice, then I can reward myself with a dessert." "If I complete my arm exercises, then I can watch a movie." While passion entails purpose and an internal drive to accomplish things, we may require a reward to sustain our motivation. We'll discuss this further in the habits section.

Another crucial element is perseverance. One way to view perseverance is as the ability to "struggle well." It involves resilience, moving forward despite adversity and setbacks, and continuing to take one more step despite obstacles that would discourage many people. For instance, as I'm writing this, my left leg is weak again, and I'm considering wearing a knee brace again. My response? I've been doing additional single-leg exercises over the last few days and will keep doing them until my leg is strong again. I'll "struggle well" to avoid having to wear a knee brace again.

A suggestion for boosting perseverance is to incorporate the term "yet." Take note of the difference between these two sentences: "I don't have full mobility in my affected hand" versus "I don't have full mobility in my affected hand yet." That single term communicates a sense of openness and hopefulness. Another crucial component of perseverance is the capacity to motivate oneself to approach every day with a "whatever it takes" mentality. Let's not kid ourselves; having grit is no walk in the park. It requires hard work. As Miller explains, "Individuals with high levels of grit simply accept hard work as the cost of admission to reach their desired destination, and they find ways to do it."

We cannot reverse time to the period before our stroke or magically become "fully recovered." The more we come to terms with our present reality, the more likely we are to invest in the hard work required to advance. It might seem counterintuitive, but accepting an undesired situation is a vital initial stage in transforming it. The outcome speaks for itself: resilience, dedication, perseverance—struggling well.

Neuro Note

If you've lost function of a part of your body due to your stroke, you may naturally avoid using that body part or performing certain tasks because it feels too hard or frustrating. Over time, this avoidance can become a habit, and you may end up relying heavily on your unaffected side or find alternative ways to accomplish the task. This creates a problem: learned non-use. The problem with learned non-use is that it can impede the recovery process. The brain's ability to rewire and regain lost functions after a stroke relies on active engagement and practice. If you consistently avoid using the affected limb or skill, the brain misses out on the opportunity to relearn and develop new connections. Use it or lose it.

We will go much deeper into goals later in the goals chapter. One important aspect of our long-term goals in relation to grit is that they are realistic. Long-term goals pull us forward, but if they are too lofty, we lose hope and motivation. You may have a long-term goal of

walking again, but right now you might only be able to move your leg a little. Don't you dare give up on that goal, but break it down so the first long-term goal is to stand. Having varying levels or timeframes for our long-term goals is okay. In stroke recovery, some goals are met quickly and others take ten times as long as we think they will or want them to. Despite that, we keep moving forward. As the saying goes, we are in "a marathon, not a sprint."

The Japanese proverb "fall down seven times, get up eight" holds a special place in my heart because it embodies the spirit of resilience and determination needed for stroke recovery. Take my patient, a Vietnam veteran, who faced numerous obstacles in his quest to regain mobility. Despite struggling to stand up due to his affected hand's lack of motor control, he refused to give up or seek assistance. Instead, he persisted, even when it meant being stuck in a crouched position for several minutes. His perseverance paid off in the end, and he was eventually able to walk again.

CHAPTER 3 - WILLPOWER

After suffering a stroke, Lisa was left paralyzed on her left side. She was overwhelmed and felt like giving up. Despite her therapist's encouragement to exercise every day, Lisa struggled to find the willpower to do so.

When we hear the word "willpower," negative feelings often arise. It's commonly linked with dieting and exercising. Most of us think we don't have enough willpower, and end up feeling like we are "not enough." Willpower and self-control are synonymous with one another. And in our quick-fix society, they sound terrible. We are more focused on what is easy and makes us happy in the moment. However, living life that way doesn't get us what we want. In fact, grit and willpower are two of the top characteristics of successful people. Those characteristics are also required for establishing and maintaining our stroke recovery momentum.

Since most of us feel we don't have enough willpower, let's start our conversation with the surprising number one way to grow your willpower: meditation. In her book *The Willpower Instinct: How Self-Control Works, Why It Matters, and What You Can Do to Get More of It*, Kelly McGonigal states, "One study found that just three hours of meditation practice led to improved attention and self-control."

I recently discovered the Balance app. It is a non-religious method of teaching meditation techniques and has daily guided meditations. It has been really helpful to me for actually practicing breathing. As a physical therapist, I often teach breathing techniques to my patients, but I rarely practiced it myself. Balance has given me the structure I needed to incorporate it into my life more.

While meditation has gained recent popularity, misconceptions about it still persist. The purpose of meditation is not to reach "transcendence" or have an out-of-body experience. As McGonigal puts it, "Meditation is not about getting rid of all your thoughts; it's learning not to get so lost in them that you forget what your goal is. Don't worry if your focus isn't perfect when meditating. Just practice coming back to the breath, again and again." If you don't have a meditation practice, try starting with a few minutes a day.

Another way to strengthen your willpower is to find ways to conserve your willpower energy. Set yourself up for success. If you struggle with self control around certain things, such as alcohol, then set clear guidelines for yourself. Instead of promising yourself you'll

only “drink moderately,” say, “I’m stopping after two drinks.” Let’s borrow a label from the lawyers and call them “bright lines.” You know when you cross a bright line. This can help us

Neuro Note

Neuroplasticity--the ability of the nervous system to change its activity by reorganizing its structure, functions, or connections after injuries—does not only relate to physical changes we want to make. We can also learn to recognize and manage our emotions more effectively. By practicing mindfulness or other techniques, we can create new neural pathways that help us become more aware of our feelings in the present moment. This heightened self-awareness allows us to respond to situations with greater clarity and control.

with our follow-through. In their book *Willpower: Rediscovering the Greatest Human Strength*, Baumeister and Tierney explain it this way: “Once you’re committed to following a bright line rule, your present self can feel confident that your future self will observe it too.” You did it once, so, you can do it again.

I often use this on my neurofatigue days. When I was transitioning back to work, I would have days that I would wake up after ten hours of sleep still feeling exhausted. I had created a bright line rule that I wouldn’t call out sick on those days without at least trying to work. My patients needed me. I was the only physical therapist on the team. Many days, I would walk down the halls wondering how I was doing what I was doing. I’d make little mistakes, such as forgetting things, but I never let patient care suffer because of my exhaustion. The next time I woke up exhausted, I’d tell myself, “You’ve done it before, you can do it again.”

Another way to conserve willpower energy is to play offense instead of defense. As Baumeister and Tierney state, “Use self control not to get through crises, but to avoid them.” Take the car in before it breaks down. Stay out of the bars or buffets. Give yourself enough time to finish the project you’re working on. This one can be tough to gauge when first starting your stroke recovery. Tasks that used to be simple are no longer simple. Allowing yourself the time, effort, and attention a task now requires without judgment is a crucial step in establishing and accepting your new normal.

To succeed in building willpower long-term, we need to acknowledge the human desire for consistency. Our body and our mind crave consistency. In his book *Mastery: The Keys to Success and Long-Term Fulfillment*, George Leonard says, “And when we change, even for the better, we’re going to feel a natural tug back to how things were.” We need to be aware of this tendency and not panic or give up at the first sign of trouble. This “change, please change

back” phenomenon happens with everyone. We may take two steps forward, then need to take a step back in order to keep moving forward and that’s okay. Our stroke recovery momentum requires a support system. People around us who can encourage us to keep going when our recovery isn’t the straight line toward improvement that we want. People that give us a reason to push ourselves.

What happened with Lisa and her struggle with willpower? One day, she looked at her son and realized that she needed to fight for her recovery—for him. He still needed his mother. She summoned her willpower and started doing her exercises every day, no matter how hard they were. She saw small improvements and became motivated to continue.

Months and months of hard work paid off. Lisa regained her strength and was able to walk with a cane. She realized that her willpower, her desire to still be a mother was the key to her success. Her stroke had taught her that the power of the human spirit is limitless, and that anything is possible with determination and willpower.



CHAPTER 4 - COURAGE

“You can choose courage or you can choose comfort,
but you cannot choose both.”

Brené Brown

When you think of a courageous person, who do you think of? Martin Luther King, Jr.? Gandhi? Harriet Tubman? Some may think of the Frodo Baggins character from *Lord of the Rings*. All of these are good examples of expressions of courage.

What do all these people have in common? They all faced what seemed to be an insurmountable obstacle, a path full of fear that lay in front of them. All of them took steps on that path despite the uneasiness inside them. Robert Biswas-Diener calls it “the courage quotient.” Their willingness to act was greater than their fear. Here is his equation:

$$\text{courage} = \frac{\text{willingness to act}}{\text{fear}} \quad (\text{willingness to act} \div \text{fear})$$

The more I studied courage, the more the topic of fear and the importance of controlling it showed up. A mentor of mine once said, “Fear is good when it cautions you, but not when it stops you.” Even if our steps are small, it is important to take those steps and, in doing so, act with courage. The examples of courage we love most are often the stories where fear is the greatest and yet it is overcome. Think of your favorite movie. What fear did the main character have? How did they overcome it?

“I’m no hero,” you might be saying. Most heroic stories we think of are general examples. Stories like Frodo in the *Lord of the Rings*. While we can take encouragement from a story like that, we need to personalize our courage journey in order for us to move forward. Make your steps specific to your journey. What does your personal courage look like? Does it involve going to a restaurant despite your new physical challenges? Is it taking a shower with no assistance? Is it putting on makeup with one hand? What is it for you?

The magnitude of our fear can be amplified by how much we allow it to consume our thoughts, making it a difficult obstacle to conquer. When we focus solely on negative thoughts and our fears, they become all we see. This shift in perception can make a small pebble in front of us appear as a massive boulder in our minds. Although the size of the pebble remains the same, our perception of it changes. Asking for perspective from a trusted

friend can help us adjust our view of our fears and minimize their impact. It can help turn that boulder in our heads back into the pebble it really is. Having a support system is really important in order to thrive in life. It is essential to keep moving forward and maintain your stroke recovery momentum. Find one or two people you can trust, who will tell you what you need to hear because they love you.

My support system has been one of my biggest assets on the days I need compassion and a hug, as well as the days I need my rear end kicked. I used to have what I called "I hate I had a stroke" days. About a year after my stroke, I was sharing with my close friends that I was having one of those days. I was focusing on what I no longer had and it was influencing the way I saw my entire life. I will never forget how one friend responded: "Take a walk down the hall of your facility, look into the rooms of patients who need you, and realize just how blessed you are." She was right, and I haven't had one of those days since.

There are many ways we can work on controlling our fear. One is to look at the evidence around us. That is what my friend asked me to do. I am blessed enough that I get to continue working as a physical therapist and help other stroke survivors in their recovery. Not many survivors have that ability. Another strategy is to avoid perfectionism. If you're like me, trying something can be difficult if you're not sure you'll be good at it or perform perfectly. Ernest Hemingway observed that "mistakes are proof that you're trying." If we circle back to the courage quotient, our willingness to act must be greater than our fear. Action is the key. Trying is the key.

Neuro Note

Task specificity refers to the idea that the brain can change in response to specific activities or tasks. Task specificity suggests that the brain's ability to rewire itself is highly dependent on the specific tasks or activities that are being performed. For example, if a stroke survivor wants to improve their ability to walk, they may need to practice specific exercises that target the muscles involved in walking. By repeatedly performing these specific tasks, the brain can form new connections and strengthen existing ones, leading to improved function. To simplify it even more, if I want to improve my handwriting, I need to practice my handwriting over and over.

After his stroke, John had lost a lot of his confidence. He wasn't where he wanted to be in his recovery, so one day he became determined to try something new. He had always loved hiking and decided that he was going to climb the hill behind his house. It was a steep climb,



but John was determined to make it to the top. As he began to climb, his legs started to shake, and his heart was pounding. But he didn't give up. Every step was a struggle, but he kept pushing himself. And then, after what seemed like hours, he reached the top. Looking out at the view, he felt an overwhelming sense of accomplishment. John had faced his fears and conquered them, and it was a moment he would never forget.

CHAPTER 5 - HABITS: BIG PICTURE

This chapter focuses on the bigger picture. We need to have good self-awareness if we are going to be able to create and sustain good habits that will maintain our stroke recovery momentum. I heard a quote somewhere that said, "If the foundation is strong, the storm doesn't make a difference." This is true in every arena of life. Who we are becoming, our identity, and the way we talk to ourselves has a big impact on whether or not we maintain our momentum.

Becoming the person you want to be is a crucial aspect of building good habits. It requires a clear understanding of your values, priorities, and goals. When you have a vision of who you want to become, you can then establish specific and actionable habits that align with that vision. For example, if your goal is to become a healthier person, you may create habits such as exercising regularly, eating a balanced diet, and getting enough sleep. By consistently practicing these habits, you are taking steps towards becoming the person you want to be. The process of building good habits requires discipline, consistency, and a growth mindset, all of which are essential qualities for maintaining stroke recovery momentum. Conversely, if we have a negative self-image, we may engage in habits that reinforce that identity, such as procrastination or self-sabotage. Our identity provides a framework for our habits, shaping the decisions we make and the actions we take.

By consistently taking action in line with your desired identity, you reinforce that identity and make it easier for you to continue acting in ways that support it. Habits play a crucial role in shaping our identity. Our daily actions and behaviors become ingrained over time, forming the foundation of who we are and how we see ourselves. When we consistently engage in certain habits, we begin to identify with them and integrate them into our sense of self.

Self-talk, the inner dialogue we have with ourselves, can have a significant impact on our habits. The way we talk to ourselves shapes our beliefs, attitudes, and behaviors, influencing the choices we make and the actions we take. Positive self-talk can motivate and encourage us to develop good habits, while negative self-talk can hold us back and reinforce bad habits. For example, if we constantly tell ourselves that we are capable of achieving our goals, we are more likely to take action and develop habits that support those goals. Alternatively, if we repeatedly tell ourselves that we are not good enough or that we will never succeed, we may become discouraged and give up on forming positive habits. By cultivating a positive inner dialogue

and practicing self-compassion, we can develop a mindset that supports the formation of good habits. This can lead to greater confidence, resilience, and success in our recovery.

Positive self-talk can either be constructive or unproductive. For example, telling oneself to "just think positive" in the face of a difficult situation may not be helpful if it ignores the underlying issues or emotions. Unproductive self-talk can lead to feelings of frustration and failure, and may even reinforce negative thought patterns. Becoming mindful of the type of self-talk we engage in is important, as well using constructive and realistic language that supports our well-being.

Simon Sinek has it right: Knowing your why is essential. Developing good habits requires knowing your why because it provides a sense of purpose and motivation. Understanding why you want to develop a particular habit can help you stay committed and focused on your goals. For example, if you want to start a regular exercise routine, your "why" might be to gain more independence and improve your ability to walk without assistance, or to feel more confident in your ability to dress yourself. When you have a clear sense of why you want to form a habit, overcoming obstacles and staying on track becomes easier. Additionally, knowing your "why" can help you choose habits that align with your values and goals, rather than simply adopting habits that others recommend. By connecting your habits to your deeper motivations and desires, you can develop habits that are more meaningful, sustainable, and rewarding in the long run.

Habits can also be viewed as systems because they are a set of behaviors that are repeated regularly and tend to occur unconsciously. Just like any system, habits have inputs, processes, and outputs. The inputs for a habit may be a cue or trigger, such as a particular action, a certain location, or a specific emotion. The process is the behavior itself, which has been reinforced over time to become automatic. And the output is the reward, which reinforces the behavior and strengthens the habit loop. By understanding habits as systems, we can take a more systematic approach to changing them. We can identify the cue, behavior, and reward components of a habit and modify them to create new, more desirable habits. We will break down each part of a habit in the next chapter.

Consistency is key when it comes to habits. Habits are formed through repetition, and being consistent in our behavior is key if we want to develop and maintain new habits. Consistency helps to create a neural pathway in the brain, making the behavior easier to repeat automatically. When we're inconsistent in our habits, we disrupt the process of forming these neural pathways and can make it more challenging to develop the habit. Additionally, when we're inconsistent, we're not giving ourselves a chance to experience the benefits of the habit, such as increased independence, improved strength, or better fine motor control.

Therefore, *intentional* consistency in our habits is crucial, whether it's by setting specific times for practicing a new habit, using reminders or cues, or tracking progress.

Neuro Note

Repetition is a crucial aspect of neuroplasticity. When we repeat an action, thought, or behavior, the brain creates new connections between neurons and strengthens existing ones. The more we repeat a particular activity, the more entrenched the neural pathways become, and the more automatic the behavior or thought process becomes. This principle is particularly important in rehabilitation, where repetition is used to reestablish the brain-body connection in order to recover certain functions that we temporarily lost due to the stroke.

Together, systems and consistency can help us establish and maintain good habits over the long term. By creating a structured approach to achieving our goals and consistently taking action towards them, we can develop positive habits that become a natural part of our daily routine. In *Stick with It: A Scientifically Proven Process for Changing Your Life—for Good*, Sean D. Young touches on the importance of creating a process or system that fits who you are, thereby connecting the importance of self awareness and habits.

If you find yourself struggling to develop new habits, you can utilize the "fake it till you make it" strategy. Richard Wiseman, a psychologist and author, emphasizes the importance of the "as if" principle in building habits. He suggests that by acting as if we have already established the desired habit, we can change our behavior and create a positive feedback loop that reinforces the habit over time. I once had a boss encourage me to use this strategy. She would cheerily say "Good morning" to everyone and suggested that if I reciprocated, I would start my day in a good mood. I was too young and cynical at the time to give the strategy a fair chance, but plenty of research back that up. Just read Wiseman's *The As If Principle: The Radically New Approach to Changing Your Life*. Wiseman also promotes having a "psychology of possibility," the idea that our beliefs and mindset can have a significant impact on our ability to achieve our goals and create positive change in our lives. This approach can be especially effective for those who struggle with self-doubt or negative self-talk, as it provides a framework for focusing on the potential for positive change, rather than dwelling on past failures or limitations. By embracing the psychology of possibility, we can tap into our inner potential and create positive habits that lead to maintaining our stroke recovery momentum.

How do we set ourselves up for success to maintain our habits? If you're anything like me, it often seems that once I get going in a new routine, I then run out of steam and stop. One of the authors of the book *Willpower* mentioned in Chapter 3, Roy Baumeister, introduced the idea of ego depletion. Ego depletion is the concept that our willpower is a finite resource that can become depleted over time. Baumeister and his colleagues found that engaging in activities that require self-control, such as resisting temptation or making difficult decisions, can lead to a depletion of our willpower resources. This can make it more difficult to engage in subsequent activities that require self-control, leading to a "domino effect" that causes our ability to make good decisions and control our behavior to become progressively weaker. The five biggest factors causing ego depletion were effort, perceived difficulty, negative affect (negative self-talk), fatigue, and blood glucose levels. We have control over much of this when it comes to habit building. As we will learn in the next chapter, using cues and starting small are essential to successful habit building. If you take the next chapter to heart, you will address the effort, difficulty, and fatigue concerns regarding decreased willpower. Once you heed the following suggestions on self-talk, the only other thing you will need to monitor is your blood glucose level. According to Baumeister's research, we have the ability to set ourselves up for success.

Establishing a new habit often requires a significant amount of willpower and effort initially, as we need to consciously remind ourselves to engage in the desired behavior and resist the temptation to revert to our old habits. However, over time, as the habit becomes more automatic and ingrained, it requires less conscious effort and becomes easier to maintain. In this sense, willpower can be seen as a finite resource that is used to establish new habits, while habits themselves are a way of conserving our willpower resources over time. By building good habits, we can make positive behaviors a natural part of our routine, reducing the need for willpower and making it easier to maintain our self-control and decision-making abilities over time.

CHAPTER 6 - HABITS: SMALL STEPS

Habits are automatic, unconscious patterns of behavior that are triggered by specific cues and followed by a reward. The habit loop, as described by Charles Duhigg in his book *The Power of Habit: Why We Do What We Do in Life and Business*, consists of three key elements: cue, behavior, and reward. The cue is a trigger that prompts the brain to initiate a habitual behavior. It can be anything from a specific time of day to a certain location or feeling. The behavior is the routine or action that follows the cue. It can be a physical action, a thought, or an emotion. Finally, the reward is the positive reinforcement that the brain receives after completing the behavior. The reward reinforces the habit and makes it more likely to be repeated in the future. Understanding the habit loop can help us identify and change unwanted habits by modifying the cues and rewards associated with them.

Newton's first law of motion, also known as the law of inertia, states that an object at rest will remain at rest, and an object in motion will remain in motion at a constant velocity, unless acted upon by an external force. This law can be applied to habits, as it suggests that it can be difficult to start a new habit or change an existing one. Once we establish momentum and begin moving in the direction of our goal, it becomes easier to maintain the habit and continue making progress. However, if we stop or slow down, it can be challenging to get started again. Therefore, finding ways to create easy, small steps or triggers that can help us establish and maintain positive habits is important. Think back to the space shuttle example—we just need to start, then the sky is the limit.

When it comes to building new habits, starting small is an essential strategy for success. Trying to make big changes all at once can be overwhelming and often leads to failure. Instead, starting with small, manageable changes can help us establish momentum and build confidence in our ability to make positive changes. For example, if we want to establish a habit of daily exercise, starting with just a few minutes of physical activity each day can be a more achievable goal than trying to work out for an hour every day. As we start to see progress and experience the benefits of our new habit, we can gradually increase the frequency, difficulty, and duration of activity. By starting small, we can create a positive feedback loop that reinforces our motivation and builds a foundation for maintaining momentum.

Starting a new habit can also be seen as an experiment, in which we are testing a hypothesis about what will work best for us. As with a scientific experiment, we may need to make adjustments and try different approaches until we find what works for us. This perspective

can help us approach habit-building with a sense of curiosity and exploration, rather than pressure and expectation. It can also make it easier to accept setbacks or failures as learning opportunities, rather than reasons to give up altogether. By treating habit-building as a system-building experiment, we can take a more flexible and adaptive approach that allows us to fine-tune our approach and find what works best for us.

Neuro Note

When we repeat a behavior over and over again, it creates a neural pathway in the brain. Think of it like a well-worn path in a field. The more you walk on that path, the easier it becomes to follow it. Similarly, the more you engage in a behavior, the stronger the neural pathway associated with that behavior becomes. Neuroplasticity allows us to change our habits by creating new neural pathways and weakening the old ones. When we want to form a new habit, we need to repeat the behavior consistently. By doing so, we strengthen the associated neural pathway, making it easier for our brain to automatically follow that path in the future.

James Clear, author of the best-selling book *Atomic Habits: An Easy & Proven Way to Build Good Habits & Break Bad Ones*, emphasizes the importance of identifying and establishing a specific cue for each habit we want to build. He explains that the cue is the starting point of the habit loop. Without a cue, the habit loop cannot be initiated, and the behavior will not become automatic. Clear suggests that the cue should be specific, consistent, and tied to an existing habit or routine. By establishing a consistent and reliable cue for our desired habit, we can create a strong association between the cue and the behavior, making it easier to engage in the habit consistently over time. For example, before I go to bed at night, I put my workout clothes on the bathroom counter. Every morning when I wake up and need to use the bathroom, I see my workout clothes. It is an easy transition to putting them on and starting my day with a quick bike ride or weights routine. My workout clothes on the bathroom counter built on a habit that was already automatic for me and made it easier to incorporate a new habit I wanted to develop.

A cue is meant to lead to a behavior. Understanding the cues that trigger certain behaviors can be helpful in changing or creating new habits. By identifying cues that lead to a behavior we want to change, we can modify our environment or routine to remove those cues or replace them with new, more positive cues that lead to the behavior we desire. If we want the behavior repeated over time, we must continue to use the new cue and also reward the behavior.

James Clear emphasizes the importance of immediate rewards in establishing and maintaining habits. He suggests that in order to establish a new habit, associating the behavior with an immediate reward is important, as this creates a positive feedback loop that reinforces the habit over time. The reward doesn't need to be something big or extravagant—even a small, immediate reward can be effective in creating this positive association. For my exercise example, my immediate reward is the endorphins, dopamine, and serotonin produced by exercise, which can improve mood, reduce stress, and anxiety. Clear also emphasizes the importance of making the reward satisfying and enjoyable, as this will increase the likelihood that we will continue to engage in the behavior and form a long-term habit. By focusing on immediate rewards and creating a positive feedback loop, we can make it easier to establish and maintain positive habits, leading to long-term improvements in our recovery.

Determining which habits to start can be overwhelming. A helpful approach is to assess one's goals and values and then identify habits that align with them. Starting with small, achievable goals can build momentum and lead to more significant changes over time.

CHAPTER 7 - GOALS

Goals are the building blocks of habits because they provide a clear direction and purpose for the actions we take. When we set a goal, we establish a target or destination that we want to reach, and we create a plan for how we will get there. However, achieving a goal often requires consistent and repeated actions, which can eventually develop into habits. When we repeatedly perform an action in pursuit of a goal, we are training our brains to recognize that action as important and develop a neural pathway that makes it easier to perform that action in the future. Over time, the behavior becomes automatic, and we develop a habit.

Within the context of therapy, the use of SMART goals is a common practice in our documentation. This framework for goal-setting involves creating objectives that are Specific, Measurable, Achievable, Relevant, and Time-bound. By following these guidelines, patients can prioritize their efforts and stay motivated to achieve their goals.

Successful goals are clear. We often set "I want to get stronger" as a goal. How would I know that I've met this goal? This type of goal is vague and not very motivating. Instead, we can say, "I want to improve my ability to get dressed by increasing my grip strength by ten pounds in three months." I'll know when I have met this goal, and that will help keep me motivated since it relates to a daily, functional task. Having clear goals helps us to develop a plan for how to achieve them.

As a physical therapist, I have to come up with goals for my patients on our first visit. I'm not always able to get an accurate picture of the patient's ability to meet the goals they set out for themselves. If a patient has a poor memory and they tell me they want to work on walking, I write a goal for them to walk. At their next visit, maybe a family member is able to attend and tells me it's been five years since the patient has walked. I could be an optimist with my patients and shoot for the stars with goals; however, therapy doesn't normally last long enough for a goal like that to be met. In these cases, I have to adjust my goals for the patient. For example, I might break down the task and start with working on standing up. Standing up can lead to walking, so we are indirectly working on the patient's goal. We just might not have enough time together to meet that goal. That might happen with another therapist down the road, but I can at least get the patient started in that direction.

To achieve success, setting realistic goals and maintaining self-awareness is crucial. By assessing our capabilities and limitations, we can establish achievable targets. Remember

that not meeting a goal shouldn't be seen as a setback or failure. Instead, view it as an opportunity for growth and learning.

In my opinion, a valuable skill for therapists to have is the ability to break down goals into smaller, more manageable tasks. This approach enables patients to focus on achievable milestones rather than feeling overwhelmed by the ultimate goal. I would rather break down a task than tell a patient their goal is unachievable. Who am I to tell them what they are capable of?

When a therapist creates goals with their patient, they need to find a balance between being realistic and optimistic. This means that we should aim for objectives that are challenging but also achievable. We must learn to understand what we're capable of and what our limitations are, then establish targets that push us while still being possible to achieve. Once I get to know a patient a little, I like to push them to "reach for the stars" in at least one goal. Goals are meant to keep us going—remember our definition of grit? Passion + Perseverance + Long-Term Goal.

A related topic is our recovery timeline. How many of us have been told whatever function we regain in the first six months post-stroke is what we will get back? This assumption really bothers me. If you've read *My Stroke of Insight: A Brain Scientist's Personal Journey* by Jill Bolte Taylor, you know she continued to make gains for years after her stroke. It definitely takes a lot of hard, consistent work to make that happen, but it is possible. When medical professionals provide timelines for recovery, they are usually referring to the statistical probabilities, but they cannot definitively predict individual outcomes. Don't let someone who doesn't know you draw a boundary like that for you.

Examples of some goals a therapist might write:

- The patient will use utensils to eat at least 75% of their meals without assistance within four weeks.
- The patient will walk ten steps with a walker or cane with minimal assistance from a therapist within four weeks.
- The patient will be able to grasp and hold a small object (e.g., a pen, a coin) with their affected hand for at least ten seconds without assistance within six weeks.
- The patient will be able to produce at least three sentences with proper grammar and intonation during a conversation with a therapist within six weeks.
- The patient will be able to lift a two-pound weight with their affected arm for ten repetitions with minimal assistance from a therapist within eight weeks.
- The patient will be able to perform a simple bilateral task (e.g., clapping, tapping) for at least thirty seconds without error within eight weeks.

- The patient will be able to walk 500 meters with a rolling walker without physical assistance within twelve weeks.
- The patient will be able to perform at least three daily living activities (e.g., dressing, grooming, and cooking) without assistance within four months.
- The patient will be able to participate in a ten-minute conversation with a therapist using verbal and non-verbal communication strategies within four months.
- The patient will attend at least two community events per month and engage in conversations with at least two new people per event within six months.

The impact of a stroke can be far-reaching and complex, requiring attention to multiple areas of functioning. As a result, prioritizing your recovery efforts based on the goals that will have the most significant impact on your daily life is imperative. This might involve focusing on regaining mobility, improving speech, or addressing cognitive challenges, depending on your unique circumstances. By prioritizing your stroke recovery goals, you can streamline your efforts and achieve meaningful progress towards your ultimate goal and maintain your momentum.

CHAPTER 8 - HOPE

“Hope is not an emotion, it is a way of thinking.”

Brené Brown

My relationship with Barbara began after she'd had a stroke. We met in the short-term rehab facility where I worked. Barbara was an avid gardener who also loved to go dancing with her partner, Kermit. Much had changed since the last time she went dancing. She now found herself in rehab trying to relearn how to use her left arm and leg. She was also dealing with being away from Kermit who was at home on hospice, likely in his last days. Since this was during the height of COVID, every treatment session involved wearing full personal protective equipment (PPE) for me. I remember one particular day when I wanted to get Barbara outside to try and refresh her spirits. I wheeled her to the back patio, locked her wheelchair brakes, and set up her walker in front of her. Barbara was still struggling to fully use her left leg at this point, so I gave her support on her left side while she took a few steps. It was spring in Colorado, so not too warm, but I distinctly remember sweating profusely while helping Barbara to walk a few feet while wearing full PPE. Barbara was in a difficult position: struggling to walk in rehab while her partner was dying at home.

As I was planning out the big picture of this book, I knew I would need to talk about hope. Hope is an essential component in any type of recovery, and also for life. What I didn't realize is that the definition for hope brings together different pieces of this book. In his book *The Psychology of Hope: You Can Get Here from There*, CR Snyder defines hope as: clear goals + willpower + waypower (ability to find new pathways to reach a goal). After realizing that hope is made up of goals, willpower, and grit, I knew I needed to move the chapter about hope. It was originally grouped with the other mindset chapters. Hope is what brings everything else in this book together. It is the culminating factor of maintaining stroke recovery momentum.

In Chapter 2, we discussed the importance of having more than one option or strategy to move forward. This is what Snyder means by waypower: having multiple pathways that can help you maintain your stroke recovery momentum. In stroke recovery, this is an important concept. As you may have experienced, you might hear different suggestions from different healthcare professionals as to how to best address your recovery. A common saying in the therapy world is “There are multiple paths to the same destination.” One therapist may focus

on exercise and strengthening. Another therapist may focus on a task, such as standing up. Still another may use neuro techniques like NDT (neuro-development treatment) or PNF (proprioceptive neuromuscular facilitation). The human body is multi-faceted, and these different strategies all get the patient closer to their goal. All of these therapists are using different pathways, but all the pathways lead toward the same goal.

The ability to find new pathways to reach a goal also includes adjusting our pathway as challenges or potential roadblocks confront us. The focus should not just be on having options, but being able to shift when we face an obstacle. Sometimes we can get discouraged when our plan doesn't work out the way we wanted it to. How do we respond to the challenge? We find another route to accomplish our goal. There are many paths to the same destination; don't let a hiccup derail you completely.

Willpower is the motivation aspect of hope. Motivation for our goals is essential to maintaining our momentum. Are certain things, habits, or people distracting you from your goals? How can you minimize the distractions so you can maintain focus? Who we surround ourselves with and the environment we are in have a profound influence on us.

Neuro Note

When it comes to hope, our brain can create new connections that make us more positive and resilient, while reducing negative thoughts and pessimism. By actively seeking out positive experiences and focusing on building hope, we can use this brain power to become more optimistic and hopeful about the future. This trains our brain to see the good things and believe in positive outcomes.

In *Hope Rising: How the Science of HOPE Can Change Your Life* by Gwinn and Hellman, they define hope this way: "Hope is the belief that your future can be brighter and better than your past and that you actually have a role to play in making it better." For me, this definition of hope is incredibly motivating. I have a role to play in my recovery. I can do something about the state I am in. Even if I was successful before my stroke, I can build a better future. The way I see it, my stroke changed me. The mindset I choose determines whether the change was for the better or not. As a friend of mine often reminds me, "You get to choose." I choose to exercise grit or not, to find my motivation for continuing my recovery momentum or not. Despite things or circumstances around us that we cannot change, we always have the choice of how we respond.

For stroke survivors, hope is the belief that we can regain lost abilities, overcome obstacles, and lead fulfilling lives despite the challenges we face. Hope encourages us to envision a

future where we can reclaim independence, engage in meaningful activities, and establish new goals for ourselves. Through hope, we can maintain a positive mindset, focusing on the possibilities rather than limitations. Hope provides the strength to persevere, adapt to new circumstances, and ultimately find meaning and fulfillment in life after stroke. “Hope is the bridge between the impossible and the possible” (Joseph Bellezzo, M.D.).

As Barbara worked hard every day to recover what she had lost after her stroke, it became apparent she would not be able to return home. While she was in rehab, Kermit had passed away and she would not be able to live by herself. Our rehab team was wonderful for Barbara during this time and had arranged for her to go home so she could say goodbye to Kermit before he passed. While her circumstances were disheartening, Barbara never allowed it to cause her to lose hope. She found a challenge to conquer every day. Barbara ended up moving into the assisted living facility on our campus. After my stroke, I started working with her again on an outpatient basis.

Our relationship changed when I started working with Barbara again. We connected on a different level, having been through similar experiences. Barbara continued to work hard for the fullest recovery possible. One motivation that gave her hope to keep moving forward was the desire to walk through the community garden on campus where she’d be able to see the same vegetables and flowers she used to tend to at her home. In fact, Barbara ended up getting a plot of her own so she could grow vegetables and flowers again. Some of the caregivers would bring her outside in her wheelchair so she could enjoy gardening once again.



At the time of publication, I continue to work as a physical therapist. I work in an outpatient clinic helping other stroke survivors in their rehab. I find it rewarding to be able to help patients on a level that not many other clinicians can, having the ability to say, “I’ve been where you are and there is hope,” and mean it. Many times, I am able to help patients put words to what they are feeling. These clinician-patient relationships have a depth and trust that simply isn’t there with my other patients. I wrote this book in hopes of being able to provide more people with guidance and hope that there is life after stroke and that there *are* ways to keep moving forward.

ABOUT THE AUTHOR



Stephanie Hopwood, PT, DPT, CSRS, is a seasoned physical therapist with over a decade of experience, specializing in stroke recovery. With a rich background in home health, skilled nursing, and outpatient care, she has honed her skills to provide compassionate and effective treatment to her patients. Having triumphed over her own battle with stroke, Stephanie brings a unique perspective to her work, understanding firsthand the challenges and triumphs of rehabilitation. Her personal journey fuels her passion for helping others navigate their

own paths to recovery with empathy and expertise. Outside of her clinical work, Stephanie finds joy and renewal in the great outdoors. Whether hiking scenic trails or simply enjoying the fresh air while camping with her husband and two canine companions, she embraces every opportunity to recharge.

