



# Spider Bomb?

A Story of Hope After TBI

# Time is Ticking – The Before Time

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BG<sup>1</sup>, like many brain injury survivors, has lived two lives in his short time on this earth. During the first, he was blissfully unaware of the spider bomb ticking away inside his brain. The second has taught him valuable lessons he might have otherwise missed.

Born both gifted and having very high pain and stress tolerances, when asked what he was like before the bomb, he reported being a driven type A personality who was easily bored and “addicted to achievement”. The first 20 years were fraught with childhood trauma, ADHD, anxiety, depression, and **C-PTSD**. When he was young, BG believed he had developed good coping mechanisms to keep all the plates spinning smoothly. However, after the TBI, he discovered they weren’t as strong as he had thought.

BG went on to describe himself as very career focused. He believed his self-value came from his work. When asked why that was, he shared that his parents weren’t around much when he was growing up and he went

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<sup>1</sup>To protect his privacy, we are only using initials.

## Important Definitions and Relevant Research

### *PTSD vs. C-PTSD*

Post-Traumatic Stress Disorder (PTSD) and Complex Post-Traumatic Stress Disorder (C-PTSD) are mental health issues that can develop after experiencing trauma, but they have different causes and symptoms. PTSD usually happens after one event, like a car accident, and can lead to flashbacks, nightmares, and anxiety. In contrast, C-PTSD comes from ongoing trauma, especially in childhood, such as abuse and neglect, or domestic violence in adults. It can cause deeper emotional problems, like trouble managing feelings, trust issues, and a constant sense of hopelessness. (Oladipo, 2021), (CPTSD (Complex PTSD), 2023) and (Google, 2024).

through some very difficult times – especially after his father died young. In pretty quick order, BG figured out that he had to be the adult in his life because he didn't have anyone to protect him. So, he set about making career plans. He completed a bachelor's degree at the University of Texas and went on to Graduate school in Chicago.

BG has worked in both public accounting and investment banking. The pinnacle of his career in “the before” was gathering up a group of investors and convincing them to invest blindly in a company he had yet to purchase or even find. Once he did find one to purchase, they had to agree that he would run it.

BG did find a company in Vermont to purchase and ultimately became a CEO at 35 years of age. He also took a big step in his private life and married in 2009.

# The Spider Bomb Explodes

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*“I had some vision symptoms and a weird feeling in my head for about 30 minutes, then stood up to talk about something on my whiteboard, felt like I was having the worst headache of my life, lost consciousness, and seized. I woke up a few minutes before the EMTs arrived. (I remember my dog laying in front of me and putting my face in her fur expecting to die). I remained conscious until shortly after we got to the ER. Once I started losing the ability to speak, I lost consciousness again (BG, 2024).”*

BG’s traumatic brain injury (TBI) occurred in 2016. He was in a coma for one month. When he woke up, he learned that he had experienced a **subarachnoid hemorrhage** that did damage to his **basal ganglia** and his **optic nerve**.

First hospitalized in Vermont, he had two surgeries to coil it, both of which failed due to a complication with the structure of the aneurysm that hemorrhaged. Later, he was transferred to Boston, when his medical team realized he needed more specialized care.

**Sub** → below or bottom

**Arachnoid** →

(Adj.) → Like a spider or arachnid.

(N.) → a fine, delicate weblike membrane in the middle of the three membranes surrounding the brain and spinal cord, situated between the dura and the pia matter (Google, 2024).

**Subarachnoid Hemorrhage** →

Bleeding in the area called the subarachnoid space.

Subarachnoid bleeding is an emergency and prompt medical attention is needed

(Campellone, M.D. & Dugdale, M.D., 2023), (Zu, Khan Suheb, & Mesfin, 2023), and (Johns Hopkins Medicine)

**Basal Ganglia** → A group of

linked brain structures handling complex processes affecting the entire body. While best known for their role in controlling the body's ability to move, experts now know they also play a role in several other functions, such as learning, emotional processing, and more (The Cleveland Clinic, 2022) and (Young, Reddy, & Sonne, 2023).

**Optic Nerve** → Also known as

Cranial Nerve II, the Optic Nerve sends visual information from the eyes to the brain. It only carries sensory signals, and is important for controlling how our pupils react to light and how our eyes adjust to see things up close (Smith & Cysz, 2022)

The doctors in Boston installed a stent rather than trying to coil the *aneurysm* again.

There is no clear cause for his hemorrhage. None of the doctors can tell him when the aneurysm formed. One doctor told him that 1 in 50 people are walking around today with undiagnosed aneurysms in the head. The best the docs could tell BG was that, since cardiovascular disease runs in his family (his dad died at age 39) his odds were higher than average (BG, 2024)

***Aneurysm (Brain/Cerebral)***

A brain aneurysm, aka a cerebral aneurysm, is a weak spot in an artery wall in the brain. This spot will stretch and bulge as it fills with blood. Most aneurysms never rupture and don't cause symptoms unless they happen to be pressing on a nerve. However, when they rupture, the resulting hemorrhage is a medical emergency (Cleveland Clinic, 2023) and (Define Aneurysm Brain).

## The Aftermath in “the After”

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While still in the hospital, BG underwent a battery of cognitive tests to discover what deficits developed because of the hemorrhage.

One of the first things discovered was a loss of vision in the upper outer quadrant of his right eye. As mentioned before, the damage to the optic nerve caused this vision loss. Even though he lost  $\frac{1}{4}$  of the vision in his right eye, BG considers himself very lucky he didn't lose more. As it is, he is still able to drive.

Those cognitive tests, he explained, included him ***drawing a clock***. He thought that was silly but started to do it anyway. Then he realized he couldn't draw the clock. At that point, BG was terrified that everyone who meant something to him would abandon him, but he couldn't bring himself to tell anyone about his fear. Many years later, he came to understand that fear was rooted in his childhood.

He did about two weeks of rehab work at the rehab center in Boston (e.g., Occupational Therapy, Physical Therapy, Speech Therapy, and Psychotherapy).

### ***Clock Drawing Test*** →

The Clock Drawing Test (CDT) is a quick test used to diagnose dementia, and to screen for cognitive issues after TBIs and in neurological/neurodegenerative disorders (Heyrani, et al., 2022) and (Eknoyan, M.D., Hurley, M.D., & Taber, Ph.D., 2012)

When it became apparent that he needed access to more specialists, BG was transferred to Houston for a few more weeks of outpatient rehab. (Four years later, in 2020, BG would do all the same therapies again, 5 days a week at “The Institute for Rehabilitation and Research (TIRR)” at Memorial Hermann Hospital in Houston for another six months.)

Speaking about the shock of rehab in Houston and the condition of the other patients he met there, BG said he thought, *“Oh my God, are these my people now? Does this define me now? I drove here!”* (BG, 2024).” Accepting himself as he was now (as opposed to before) was extremely difficult for BG, as it is for many TBI survivors.

At first, driven by fear and an overwhelming need to be normal again, BG misrepresented his condition to himself, his family and friends, his employees, his Board and his investors – telling everyone that everything was fine, and the hospitals had done a great job of rehabilitating him. He reassured them all that, other than needing a few extra naps, he was the same as before. They believed him, so he was able to go back to work less than two months after the initial

***TIRR Website – Location & Contact Information →***

[TIRR Memorial Herman Outpatient Rehabilitation](#)

1-800-447-3422

aneurysm rupture (this was less than a month after coming out of the ICU).

The next four years were grueling. BG battled both **insomnia** and extreme **fatigue and exhaustion**. **Cognitive issues and memory problems** continued to plague him, and it appeared he had lost all of his **stress tolerance**. He was in total denial of his deficits. His company did everything they could to help him. Eventually though, it all caught up with him and he realized he could not do the job. Finally, in 2020, he informed his Board of Directors that they needed to replace him.

After leaving his job during the pandemic, BG surveyed the landscape of his support network in Vermont and knew it was not a good idea to stay there. *“The TBI really showed me who my friends were and who I could count on. I lost many friends. Some just didn’t know how to react, relate, or empathize. Some were just flat unhelpful or even hurtful (BG, 2024).”* He decided it would be best to be near family and a better medical center than the ones he had access to in Vermont and Boston. So, he and his spouse packed up their truck and headed back to Houston.

#### **Common Problems After TBI →**

It is very common for people to have trouble with **cognition (thinking and memory)** after a TBI (Neumann, PhD & Lequerica, PhD) and (Novack, PhD & Bushnik, PhD, 2018).

According to the Trajectories of **Insomnia** in Adults After Traumatic Brain Injury Study, about two weeks after the TBI, 43% of patients report sleep problems. A year later, 29 out of every 100 adults who have had a traumatic brain injury experience insomnia or trouble sleeping. This is about twice as common as in adults who haven't had a TBI (Wickwire, et al., 2022).

Finally, a study published by the National Institutes of Health (NIH) found that people who have survived traumatic brain injuries often struggle with **handling stress**. This is because they have trouble figuring out what is stressful and how to respond appropriately to stressors. As a result, these challenges can make any other symptoms from their TBI even worse (Weil, White, Whitehead, & Karelina, 2022).



## Money Matters

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While working, BG had good private health insurance with excellent coverage options. When he quit his job, he lost the insurance, but easily rolled over to his spouse's plan. Due to these policies, his TBI was not financially catastrophic. He estimated his grand total for all the hospitals, rehabs, and follow-up care to be around \$800,000. After insurance payments, he owed approximately \$10,000. As we discussed this, he mentioned his gratitude for the insurance, his understanding that it gave him flexibility about when/where he would be treated, and it gave him options about his employment. BG mentioned that he did not have medical insurance as a kid. Therefore, he understands that his situation could have been much worse (BG, 2024).

## Matters of the Heart

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When asked to sum up his experience before the TBI and who he is after it, BG said, *“Before? I was the smartest guy in the room – I really was. After? Well, the younger parts of myself that had always expected to be alone and abandoned became reactivated (BG, 2024).”*

As our discussion moved toward ***grief***, it was a little more difficult for BG to sum it up so succinctly. Now 8 years post TBI, he still misses who he was. However, he also recognizes that he was not mentally healthy back then – in the before time.

Recognizing that his intelligence wasn’t completely lost, BG started working again after completing rehab in Houston. He currently works about 70% of the time doing project-based work. Now, however, he guards his freedom and flexibility zealously. It is important to him that he be able to work when he is awake and alert – even if that is 2 a.m. This also gives him the flexibility to sleep when he needs to – even if that is 3 p.m.

***Post-TBI Emotions*** → Often, brain injury survivors find their emotions overwhelming, both right after the TBI and several months to years after. Many of these emotional changes are the natural result of grief, coming to terms with the changes in their brain, their changing roles in the family, and their ability to work. Others, however, are a result of no longer having the capacity to mask long-term psychological issues such as anxiety, depression, or PTSD/C-PTSD (Zwilling, Sander, & Hanks, 2022), and (Bryant, 2011) .

***Grief*** → A feeling of intense sorrow usually caused by someone’s death. However, TBI survivors can grieve the loss of self that occurs as a result of the overwhelming changes they experience as their brain heals. This is often an intensely personal and painful journey as the survivor says goodbye to the person they were and gradually comes to accept who they have become (Headway, 2017).

When asked what he misses most about himself in the before time, BG thought for a minute and then responded, *“I miss my mental health and stress tolerance (BG, 2024).”*

Eventually, he summed up his experience of grief this way:

- The first four years = Denial
- Next four years = Coming to Terms
- Now = *“I have learned to accept who I am, the parts of me that remain and the new parts that can be more difficult.”*

# Mental Health Matters

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BG described his mental health prior to the TBI as: moderate **depression** and **anxiety** which were very manageable – usually with exercise. Therefore, when the doctors in Vermont warned him that these issues might increase and be a part of his life from then on, he scoffed.

However, BG would not get the last word on the matter. Two to three months later, he was afflicted with suicidal depression which was extremely difficult to medicate. He recalled a time when his “young” psychiatrist conferred with his “old” psychiatrist. Together the two decided he had Post Traumatic Stress Disorder (PTSD). This diagnosis angered BG deeply. From his perspective, his brain was trying to murder him. Additionally, he did not feel any of his meds were effective, and they all came with such terrible side effects.

## **Depression After TBI →**

About half of people with TBI get depressed within the first year, and nearly two-thirds within seven years.

### **Symptoms include →**

- Feeling sad or hopeless
- Losing interest in activities
- Feeling worthless or guilty
- Changes in sleep or appetite
- Trouble concentrating
- Withdrawing from others
- Low energy
- Moving or speaking slowly, or feeling restless
- Thoughts of death or suicide

### **Causes of Post-TBI Depression →**

- Brain injury affecting emotion control
- Changes in brain chemicals
- Emotional response to injury
- Pre-existing risk factors like genetics

*If you have symptoms, seek help from a healthcare provider familiar with TBI. Treatment includes medications and therapy, and early treatment is best.* (Fann, MD, MPH, Hart, PhD, & Model Systems Knowledge Translation Center).

## **Anxiety after TBI →**

Anxiety, extreme fear and worry, can severely affect a person's social life and overall well-being.

Numerous studies have been undertaken to show how often people develop anxiety after experiencing TBI. Results show as many as 17.45% of people with TBI develop anxiety within 2-5 years after their TBI. That means, people with TBI are almost twice as likely to have anxiety compared to those without TBI. Interestingly, researchers have learned that the severity of the TBI **does not** affect the likelihood of developing anxiety, and generalized anxiety disorder is the most common type of anxiety seen after TBI (Dehbozorgi, et al., 2024) and (Osborn, Mathias, & Fairweather-Schmidt, 2016).

Then, one day in 2018 while taking his 9 months old daughter to daycare, he had what he described as a possible **PTSD flashback**. *“It felt like I was having another aneurysm. I got very angry because, for the first time, I didn’t want to die (BG, 2024),”* he explained. Finally, he had realized that he didn’t want to die and leave his daughter behind.

At that point, the doctors only offered him **Electroconvulsive Therapy (ECT)**. As scary as it sounded, they told BG, it only had about a 5% efficacy rate in cases like his. He politely declined and began looking for another way.

**PTSD Flashbacks** → A common PTSD symptom, where a person relives a traumatic event as if it's happening again. There are different types of flashbacks:

- *Visual* – seeing vivid images of the traumatic event.
- *Emotional* – reliving the same intense emotions felt during the trauma.
- *Sensory* – reexperiencing the trauma through the senses (i.e., hearing, smelling, or feeling things that aren’t there but are related to the event).
- *Dissociative* – reexperiencing the trauma separated from the body – as though they are a third person watching it happen.

Triggers can include anything that reminds the person of the trauma, like certain places, people, sounds, or even smells. Flashbacks can be very distressing and make it hard for people with PTSD to go about their daily lives (CBH Staff, 2023) and. (Vasterling, Jacob, & Rasmusson, 2017)

**Electroconvulsive Therapy (ECT)** → A treatment using brief electrical stimulation of the brain while a person is under anesthesia – similar to inducing a seizure. Mostly used to treat severe treatment-resistant mental illnesses like depression and psychosis. ECT might temporarily affect memory or cause confusion, but studies show it can be a safe and effective option for most. However, due to the prevalence of seizures in post-TBI patients, there is a paucity of research into the safety and efficacy of ECT for this population. Nevertheless, four case studies published showed good outcomes. One highlighted the improvement seen in a patient with both a TBI and a severe mental illness. After undergoing ECT, he showed clinical improvements in psychosis, mood, and cognition. While ECT is not a first-line treatment, for some individuals with both a TBI and a serious mental illness that hasn't responded to other treatments, it may provide significant benefits (Adachi & Yang, 2021) and (Srienc, Narang, Sarai, Xiong, & Lippmann, 2018).

# Down the Mushroom Covered Road

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BG started doing research into better ways to treat his mental health problems. At first, his research centered around all the usual suspects:

- Better drugs
- Better exercise
- Better food
- Better anything

Then, one day, he landed on some research studies about psychedelics (also known as magic mushrooms). The research was very intriguing and looked very promising. BG decided to discuss this with his young psychiatrist and get his take on it.

The first thing the doc did was screen him for Schizophrenia since sometimes people with Schizophrenia have trouble with psychedelics. Then, the young doc said, “As a doctor, I can’t recommend this route. However, the science looks good, so as a human – yes.”

## ***Psychedelics (Magic Mushrooms)→***

**(Adj.)** → Aka “psychedelic drugs” – usually those made from mushrooms and plants (especially LSD and psilocybin). Relating to or denoting drugs that produce hallucinations and cause other effects on the mind, such as feelings of deep understanding or unusually strong experiences of color, sound, taste, and touch

**(Adj.)** → Psychedelic art or clothing has bright colors and strange patterns resembling the type that might be experienced by those who take psychedelic drugs.

**(Noun)** → a psychedelic drug; also any toadstool containing the chemicals psilocybin or psilocin and which have hallucinogenic properties

(Define Psychedelic, 2024), (Psychedelic, 2024) and (Define Magic Mushrooms, 2024)

Still, BG decided he needed more opinions to make a final decision, so he also talked to his PCP and a former therapist. Eventually, BG decided he had nothing to lose and would try psilocybin using the dosing regimen from Johns Hopkins and have his spouse in the room with him.

When explaining what it was like, BG said,  
*“Psychedelics are life changing. Before this, I used alcohol and drugs to numb my emotions. Psychedelics bring the emotions out. The first trip was the most painful emotional experience in my whole life. But the next morning when I woke up, I HEARD the birds. I don’t remember the last time I heard them (BG, 2024).”*

BG related an interesting story that he believes is a result of psilocybin. For the previous 2-3 years since leaving the hospital, he had been sleeping on the leather sofa in the living room. He felt like it was to help his brain realize that he wasn’t in a hospital.

However, after the first “trip”, he realized it was because the bedroom was decorated white – just like the hospitals. He quickly changed his bedding to a very floral and very textured set. Soon he was sleeping in his bed again.

#### **Relevant Study Information →**

[Psilocybin Treatment for Major Depression Effective for Up to a Year for Most Patients, Study Shows](#) This is a media announcement about the results of a Psilocybin study. It is a nice summary of the What/How/Why/What Now of their research in plain English (Johns Hopkins Center for Psychedelic and Consciousness Research, 2022).

[Johns Hopkins Center for Psychedelic & Consciousness Research](#) This website contains all the Johns Hopkins research studies in one place that are currently recruiting study participants. Click on the “Research” button at the top to see a listing for each study.

**Note:** Johns Hopkins was the first research team to receive regulatory approval in the US to reinstate research into psychedelics and their 2006 publication on the safety and efficacy of a single dose of psilocybin is considered the landmark study that triggered a resurgence in research of psychedelics worldwide (JHCPCR Research Team), (Marisol Martinez, 2022), .

According to BG, at the time of his initial research in 2019, the Johns Hopkins researchers used a two-dose schedule. The first dose is large (4g dried mushrooms) considering the party dose is usually around 1 to 1.5g. BG stresses the first trip gives you great information about yourself.

The second dose is double the first (8g dried mushrooms). BG compared this dose to defragging and rebooting a computer. It didn't bring any useful information to the conscious awareness. Nevertheless, he said he felt lighter for a couple months after each trip.

When he started using psilocybin, he made sure to have someone in the room in case anything went wrong. Now, he just makes sure someone else will be in the house. When asked how often he does this, he reported that he repeats this regime quarterly.

Pondering what psilocybin does to the brain, BG gave the following word picture, *"Imagine a sledding hill. At first, you can go any way you want. Later, though, the snow starts to get grooves in it and the sleds are stuck with going down*

**Research Update** → As of February 2022, Johns Hopkins - the leading researcher on psilocybin, has effectively shown that psilocybin is an effective treatment for major depression, with just two doses rendering a reduction of symptoms for almost a year for most patients (Marisol Martinez, 2022). In addition, they have shown similar results with a whole host of other mental health issues since receiving regulatory approval to resume psychedelics research in 2000 (Johns Hopkins Medicine, 2024)

**Plasticity & Flexibility** → Psychedelic drugs like psilocybin appear to work by encouraging new neuronal connections in the brain – a process we call plasticity. As plasticity develops, flexibility in selecting which connections to use improves. Cognitive flexibility is a component of executive function. Psychological flexibility is the ability to act in accordance with one's values despite inner discomfort, such as distress or pain. Both are linked to health and well-being. (Reynolds, 2023), (Whiting, Deane, Simpson, McLeod, & Ciarrochi, 2015), (Mental Flexibility Post TBI, 2024) and (Faulkner, et al., 2020).



*in the grooves. Psilocybin is like a big old dump truck coming in and dumping 6' of snow on the hill to cover the grooves. That's how it gave me more flexibility (BG, 2024). "*

BG equates mental flexibility to our automatic reactions. As we discussed it further, he feels that psilocybin gave him a little bit more space and time to react, so he can think it through before acting. This has greatly helped his impulsivity, and he feels like he better understands context and emotions. Looking back, he feels like he was a black and white thinker who couldn't read other people's emotions unless they were big like anger.

**Cognitive Flexibility** → Many TBI survivors have impairments in their cognitive flexibility as a result of damage to areas of the brain controlling executive function. Psilocybin has also shown great promise for treating mood disorders which are accompanied by cognitive dysfunction such as cognitive rigidity which many TBI survivors find themselves struggling with frequently (Whiting, Deane, Simpson, McLeod, & Ciarrochi, 2015) and (Doss, et al., 2021)

## The Barriers Are Real

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BG's disability is invisible. His deficits do not stand out. Even so, the barriers to his best life are very real. Since he does project-based work, repeatedly pleased clients are always trying to hire him. He understands most people would be happy to go to work full-time. But BG also understands that once he loses control of his flexibility and freedom to work when and where he wants, his mental health will once again deteriorate as his stress rises.

Barriers to care were his biggest issue in Vermont, and to some degree in Boston. Once he got to Houston, the care was better, but he always had to rely on his spouse or a doctor to quarterback his care. Sadly, BG and his spouse are now divorcing, so not only is he losing his quarterback, but he is also losing his health insurance. Assuming he wins a disability application, there is still a two year wait for Medicare. This may cause significant barriers to care in the future.

**Post TBI Marriages** → A quick Google search confirms the other invisible and often whispered about side effect of TBI – change in relationship status. Scrolling down the list it is easy to see the grim reality – divorce rates run between 48%-78% within 2-5 years post injury. This is about twice the published rates for non-TBI controls in any given 5 year period (Rates of Divorce Post TBI), (Kreutzer, Marwitz, & Virginia Commonwealth Model Systems of Care), and (Miller, 2012).

Luckily for BG, he has not had any legal issues or legal barriers since his TBI.

Turning philosophical, he pointed out that American society is empathy poor. He felt manipulated and blamed for struggles that he wasn't responsible for creating. He observed quietly, *"In society, you don't come with much credibility."* He explained that people think he is overbearing for asking for what he needs. Then he said the most heartbreaking thing of all, *"If I could have kept just a little of that facial droop, I feel like people would have more understanding (BG, 2024)."*

## The Big Takeaway

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Since BG volunteers for a local Brain Injury Association, I asked what advice he gives to others just beginning their recovery journey. He thought for a moment and then recommended that everyone get to a city or a medical center with resources like specialists and a rehab.

*“You learn a lot about who your friends are. This will redefine your definition of friendship. - BG”*

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