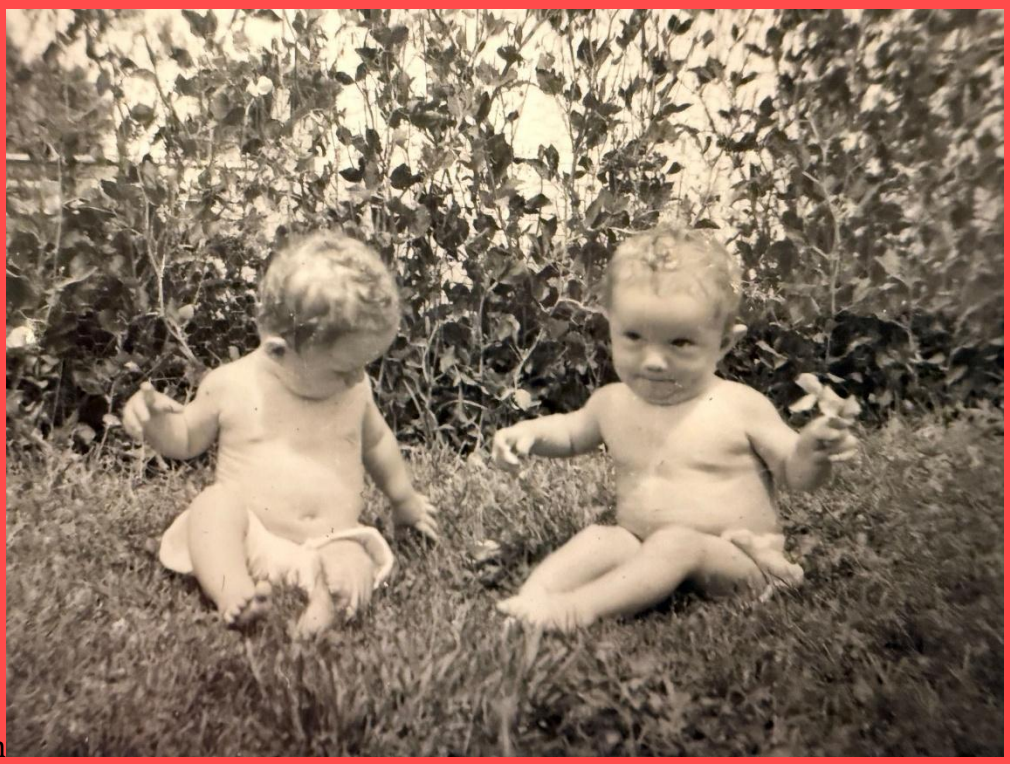
The Sacred Science of Sorrow

Remembering My Brother Gregg

h 

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A twin bond forged through adversity

Gregg and I arrived in this world together. We were identical twins, each other's playmate, confidant and mirror. Our early years unfolded against the backdrop of inter generational trauma. My father was a fundamentally good man, but he carried the scars of the savage beatings he had received as a child. He worked tirelessly to provide for our family and broke many of the abusive patterns he inherited, yet the pain of his upbringing sometimes spilled over into his own parenting. Gregg and I responded to this adversity by over achieving; we collected trophies, maintained near perfect grades and treated accomplishment as armour. He always seemed to have an extra gear. He was recruited by the U.S. Air Force Academy for his brilliance in gymnastics as an all around gymnast, pivoted to engineering and secured a patent with Ford Aerospace, then reinvented himself as a high end builder and later as an accountant. I took another route. Realising I could not

match his pace, I leaned into people and connection. Becoming a psychologist taught me that our relationships, not our résumés, heal trauma.

Our divergent strategies defined our adult lives. Gregg continued to chase milestones, believing that the next achievement would finally make him feel "enough." I chose to cultivate deep relationships, to lean into faith and community. Ironically, my choice saved me when my life unravelled around age fifty. My wife battled melanoma, my daughter was hospitalised for a suspected lymphoma, and the economy collapsed. Overwork and over acquisition landed me in an emotional breakdown. Therapy, spiritual practice and the love of others pulled me through. Gregg's story would unfold differently. He cycled through episodes of depression, often comparing himself negatively against the impossible standard he had set. In his sixties he withdrew further, eventually moving to Florida and severing contact. On 11 October he died. Time has not healed the hole he left. Even now, reaching for the phone to call him triggers a wave of grief and a physical ache in my chest.

A promise to finish his story

When I sensed I would lose Gregg, I told my wife Leah two things. First, that I could feel his life slipping away a twin's intuition reinforced by years of working with trauma. Second, that I would not let his death destroy me. I knew the pain would be profound and enduring, but I decided to lean into the love of family and friends, to ground myself in prayer, and to transform our shared suffering into purpose. When Gregg died, I whispered to him that I would finish the life he could not. I vowed to take the truth of his beautiful, complicated journey his victories and struggles and use it to help others. This blog and my NeuroFaith® model are part of that promise.

The grieving body: how loss affects the heart

Mary Frances O'Connor's book *The Grieving Brain* (which Leah gave me knowing my love of neuroscience) emphasises that grief is not merely emotional; it is embodied. Research shows that the death of a loved one dramatically increases cardiovascular risk. In a 2012 case crossover study, individuals were more than twenty one times more likely to suffer an acute myocardial infarction in the first day after learning of a significant person's death, and the risk remained elevated roughly eightfold across the first week. A separate Harvard Health review noted that the risk begins to decline after the first week but remains above baseline for at least a month. These findings provide a biological basis for the phrase "broken heart." Intense emotional stress triggers surges of catecholamines (stress hormones) that elevate blood pressure, accelerate the heart and increase clotting tendency. In some cases the stress "stuns" the left ventricle, causing a temporary condition called **takotsubo cardiomyopathy** or broken heart syndrome the heart balloons and mimics a heart attack.

The heart itself is a marvel. It beats about 100 000 times per day and sends blood through a circulatory system long enough to wrap around the Earth. Its rhythm is partly governed by the vagus nerve Latin for "wanderer." This cranial nerve originates in the medulla and

travels down through the neck and chest, innervating the larynx, lungs, heart, stomach, liver, pancreas and intestines. Parasympathetic fibres of the vagus slow the heartbeat and regulate its rhythm. A healthy heart exhibits **heart rate variability** (HRV): heart rate rises during inhalation and falls on exhalation, creating a gentle sine wave. High HRV reflects flexible vagal control and is associated with resilience and better cardiovascular health, whereas low HRV signals distress and predicts higher risk of disease. In grief, HRV often becomes jagged and dysregulated, mirroring our emotional turmoil. The heart can thus be thought of as an acoumeter for our thoughts, feelings and motivations.

Attachment and the brain's protest

Attachment theory further illuminates why losing Gregg felt like losing a part of myself. When we form deep bonds, our nervous systems synchronise; the me and you become "us." This neural attunement becomes the baseline from which we explore the world. The sudden absence of a central attachment figure triggers a **protest response**: heart rate and sympathetic arousal rise to fuel the search for the missing person. This response is adaptive in temporary separations, such as a child searching for a caregiver. In bereavement, however, the loss is permanent. Over time our brains slowly learn this new reality; the protest gives way to despair and eventually to adaptation. In the process we must reattach to others and to God, and find new ways to regulate our nervous systems. For me, Gregg had always been a source of co-regulation, someone who could calm my nervous system with a look or a joke. Losing him dysregulated me; I felt like half of "us." Understanding that this reaction arises from well studied attachment circuitry helped me normalise my grief. Dan Siegel's interpersonal neurobiology teaches that our brains and bodies are shaped by relationships, and Mary Frances O'Connor emphasises that grief is the cost of attachment. Without connection, we cannot heal.

Co-regulation, external pacemakers and broken hearts

Interpersonal neurobiology and attachment theory suggest that when we give our heart away when we fall in love or form a secure bond, we become external pacemakers for each other's cardiovascular systems. Our heart rhythms synchronise, our breathing aligns and our vagal tone responds to the presence of the beloved. Gregg's heart helped regulate mine, and mine his; together we formed an "us" at both the emotional and physiological levels. The benefits of this co-regulation are profound. Polyvagal theory teaches that co-regulation through social connection dampens sympathetic arousal and enhances parasympathetic safety. Heart math research shows that shared positive emotion can entrain heart rate variability into coherent, sine wave patterns. Bowlby's attachment theory frames these physiological patterns in terms of security: we feel safe enough to explore the world because another heart beats alongside ours.

Mary Frances O'Connor notes that upon the death of a partner, the surviving person must learn to regulate the cardiovascular system without this external pacemaker. Tragically, some hearts cannot adapt. The loss of co-regulation may lead to rapid heart rate, arrhythmia or stress induced cardiomyopathy (takotsubo), and in some cases people

literally die of a broken heart. Longer term bereavement also taxes the immune system by keeping the body in a prolonged state of stress. I experienced the frantic search for Gregg's regulating presence in my own chest a racing heart, a sense of being physically unmoored. Recognising that this reaction is a natural consequence of losing an external pacemaker helped me extend compassion to myself and underscored the importance of cultivating new sources of co-regulation. In the next section I will explore how grief affects immunity and what science suggests we can do to heal.

Facing the truth: the medical examination

As someone who strives to live in the light of truth, I knew I could not hide from the reality of Gregg's death. My work as a therapist has taught me that healing requires confronting the facts, however painful they may be. Shortly after his passing I arranged to meet with Marty, the medical examiner who evaluated Gregg. She had authored the official report, and she kindly offered to walk me through it. Marty's empathy and candour were a gift; she understood that I needed to know what had happened and that I could handle the truth. Reading the report was devastating, but I was grateful for her presence.

The report confirmed what I already sensed: Gregg had wasted away in his despair. I will not share the exact figure, but his weight loss was severe. It spoke volumes about how deeply he had given up on living. Marty looked me in the eye and asked if I really wanted to know all the details. I nodded. In those pages I saw a man who had once been vibrant and strong now reduced by depression and isolation. Yet the report also revealed that, alongside the weight loss, his heart showed signs of chronic disease. Among his organs, the heart bore the brunt of the damage.

This finding resonated with everything I had learned about neurocardiology. The heart is more than a pump; it is exquisitely sensitive to emotional states. As discussed earlier, bereavement can precipitate acute heart attacks and stress induced cardiomyopathy. The official report made clear that Gregg's despair had weakened his heart long before it stopped beating. In a very real sense he died of a broken heart. Knowing this did not lessen my pain, but it did deepen my understanding. It underscored that his death was not simply an act of will; it was the culmination of physiological and psychological stress. Facing this truth allowed me to honour him more fully and to champion the scientific truths that support our stories of loss.

Grief and the immune system

Loss affects not only the heart and nervous system but also the immune system. The emerging field of **psychoneuroimmunology** explores how our thoughts and emotions influence immune function. From an attachment perspective, the brain encodes a map of the world that includes our loved ones. When a loved one dies, that map must be updated. In grief we are torn between two streams of information: the **memory of the death** and the **attachment belief** that our loved one will always be there. This conflict O'Connor calls it the "gone but everlasting" paradox can keep our physiology in a state of high alert. We

used to think the brain was immune privileged, shielded from inflammation in the body. In fact, the central nervous system has its own immune cells. **Microglia** the resident macrophages of the brain represent roughly 5 10 % of all central nervous system cells. These "resident gardeners" prune synapses, remove dead cells and help refine neural circuits during development. Under stress, however, they can produce inflammatory molecules that alter neurotransmission and synaptic pruning.

Inflammatory proteins produced elsewhere in the body also influence the brain. Cytokines, such as interleukin 6 (IL 6), can cross the blood brain barrier in certain regions and can bind to receptors on the vagus nerve. The vagus then transmits electrical signals to the brain, relaying information about peripheral inflammation. In bereaved people, this neuroinflammation can disrupt the production of serotonin and other neuromodulators. Microglia may become overactive, leading to **dysregulated pruning** over pruning of synapses that weakens neural networks and impairs social cognition. Because microglia comprise a tenth of the cells in our brain, their dysregulation can have far reaching consequences.

Grief and stress also reshape the microbiome. Chronic stress can disrupt the gut flora, increasing intestinal permeability ("leaky gut"). Bacteria and their by products may then enter the bloodstream and activate the immune system, fuelling systemic and neuroinflammation. The vagus nerve communicates these inflammatory states to the brain, further heightening arousal. The result is a feedback loop: loss triggers stress, stress alters the gut and immune function, and immune activation feeds back into the nervous system.

O'Connor argues that there is no quick pharmacological fix for this cascade. The best medicine is human connection. Four elements, she writes, are essential to healing after loss: **people, community, belonging and mattering**. Medication may blunt symptoms, but it cannot replace the co-regulation, meaning and security that come from being seen and held by others. In the weeks and months after Gregg's death, I felt the urge to withdraw. Gregg had lost his sense of belonging and mattering as he isolated, and his heart could not recover. I chose differently. I leaned into my faith, into my family and friends, and into my calling to help others heal. I discovered that the most helpful comforters were often those who simply sat with me in silence, whose calm breathing and coherent heart rhythms reflected in their own heart rate variability helped stabilise mine. God reached me directly through prayer and through the presence of others. As I learned to regulate without Gregg's external pacemaker, I found that new attachments and a sense of purpose tempered the neuroinflammatory storm.

Meaning making and resilience

In the months after Gregg's death I read O'Connor's book slowly, letting her insights settle from my head into my heart. I discovered that integrating neuroscience with faith deepened my resilience. Knowing that grief can disrupt vagal tone and heart rhythms compelled me to practise breathwork and prayer. Recognising the protest response in my racing heart allowed me to gently tell myself that Gregg was gone and that searching would

not bring him back. My wife Leah, my family and my community became new sources of co-regulation. I also channelled my energy into this narrative: honouring Gregg by sharing his story and by weaving it into the science of grief. The integration of research and personal narrative is itself healing it transforms pain into purpose.

Conclusion: honouring Gregg through science and story

Gregg's life was a tapestry of brilliance and struggle. He was a gifted gymnast, engineer and builder; he carried the weight of inter generational trauma and the burden of feeling never good enough. Our twin bond was soul deep, and his absence is a wound that still throbs. Yet grief has also revealed the profound wisdom of our bodies and brains. It has taught me that the heart registers loss in its very beat, that the vagus nerve carries our emotions throughout the body, and that attachment leaves neural imprints that protest when bonds are severed. It has shown me that faith, breath and community can restore coherence to a dysregulated heart. Most of all, it has reaffirmed my vow: to finish the life Gregg could not, to carry his story forward, and to use the neuroscience of grief to help others find meaning in their pain.

A letter to Gregg

Gregg, you gave me so much of yourself. You were there for me through my lowest valleys and you rejoiced with me on the mountaintops. You blessed my life in ways that words fail to capture. I have chosen not to dwell in the negative space of your absence but to celebrate the value you were and still are to me. I will live on the legacy of "us." I will honour the beauty of our bond and reflect it in all my relationships. I will seek out others who can offer me what you offered, and I will strive to be the blessing to them that you were to me.

I will always love you, Gregg. I will always miss you. I will always ache for you. Yet I will carry your light forward. Your life and our love will inform the way I love others and the way I help those in pain. In celebrating you, I am celebrating the best parts of myself.

And why the red background you might wonder – it was Gregg's favorite color – every motorcycle he owned was indeed red.