

What it feels like to wake from a coma, survive a lightning strike, or lose a limb—plus the medical miracles that await and bring hope

By KATHLEEN McAULIFFE

Illustrations by MATT MAHURIN

WE LIVE IN AN AGE OF amazing medical breakthroughs—advances so remarkable that even TV shows like *House*, *Grey's Anatomy*, and *ER* needn't exaggerate much. Doctors really can make the blind see. They can rouse folks felled by lightning—or ones who've slipped into a coma.

But what does it *feel* like to be one of those medical miracles you've seen or read about? Find out from four people who beat enormous odds—and lived to tell about it.



“I woke up from a monthlong coma”

Laura Selub von Schmidt
58 | Dix Hills, NY

IN 1998, WHEN I WAS 49, I was rear-ended while driving my car on the Long Island Expressway. My skull fractured and was pressing against my brain. For 35 days, I was in a coma.

I was given a battery of tests; apparently, I flunked, because the hospital staff kept trying to get my husband to accept that I might be brain-dead. He went ballistic when they suggested that he consider taking me off life support.

Eight days after the accident, the neurosurgeon examined me. I appeared unresponsive, but when he asked me to open my eyes, I did. Then he asked me to show him two fingers. I have no recollection of this, but my husband tells me that after a few seconds and with a lot of effort I held up two fingers. The whole place went nuts. The

surgeon practically danced a jig. To my husband, my gesture was a “Victory V.” Even though I was dazed and out of it for a few more weeks, he was convinced I’d recover completely one day.

My first moment of awareness didn’t occur until a month after the accident. I woke up and announced: “I have an appointment.” I’d been on my way to one when the crash occurred, so I was like Rip van Winkle. I didn’t remember the accident at all. I did, however, remember my husband. When I asked about our two sons, who were 12 and 5 at the time, he told me that one had just come to visit. I’d already forgotten.

That kind of memory loss was only one of my problems. I’d been a busy dentist, but now I was easily confused; people would tell me things, and I’d forget or get hopelessly mixed up. There was a disconnect between my mind and my mouth—I struggled to get out the words I wanted to say. And the part of my brain that controls balance was damaged, so I couldn’t stand up.

THE SCIENCE SAYS | Only the lucky recover

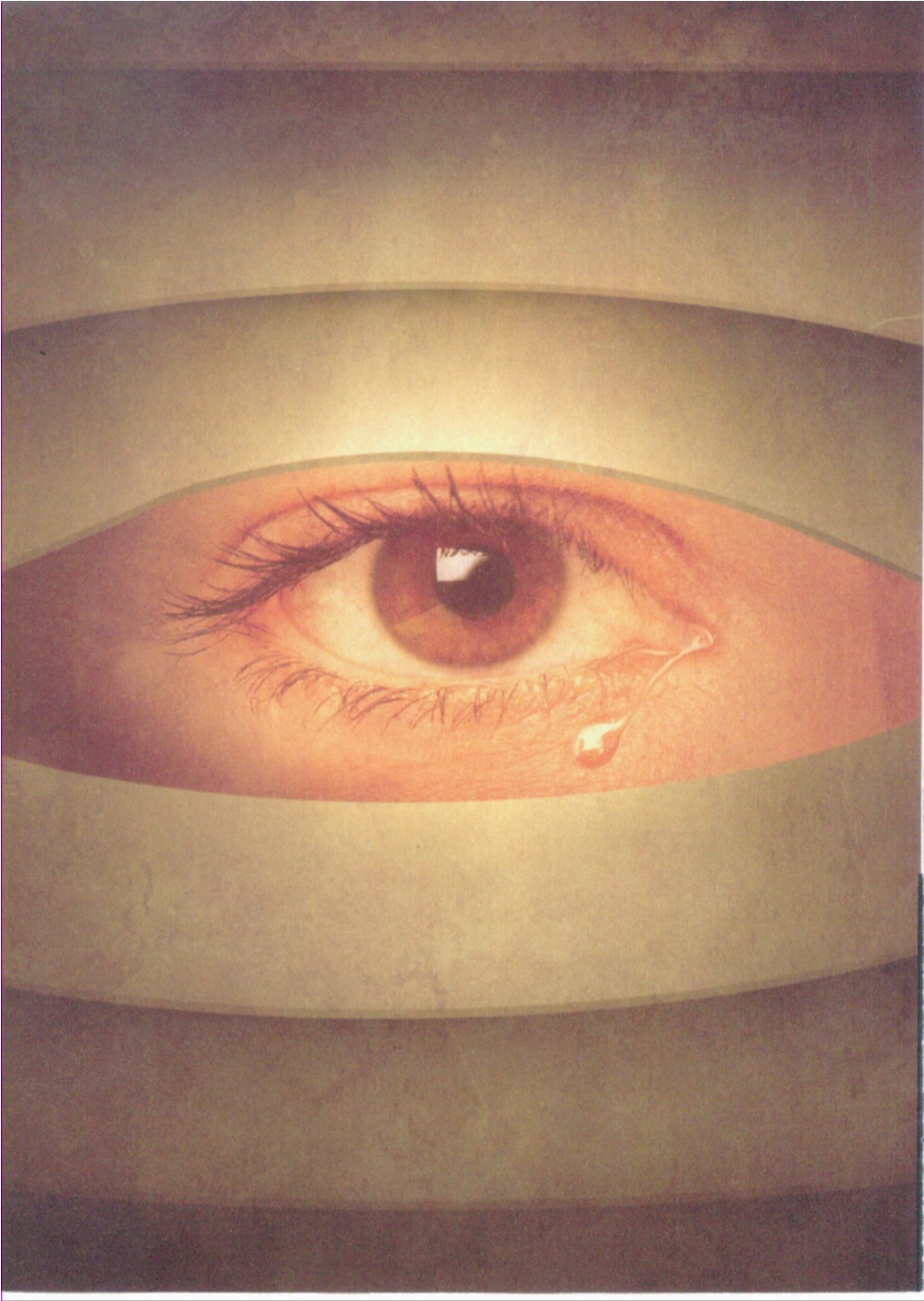
ONLY ON SOAP OPERAS do patients snap out of a coma and go back to their old lives the next day. In reality, coma patients are completely unresponsive to stimulation or commands; their eyes don’t open. Within 2 weeks, they generally improve, die, or progress to a vegetative state—their eyes open, but they remain unre-

sponsive. Some advance to a state of minimal consciousness, occasionally responding to commands, as Selub von Schmidt did. With luck, this precedes a return to full consciousness.

“After 6 months in a vegetative state, a patient’s chances of a meaningful recovery are virtually nil,” says Jamshid Ghajar, MD,

PhD, president of the Brain Trauma Foundation in New York City. But people who reach a state of minimal consciousness may hover in limbo for years. Ghajar cites the case of a firefighter who lived this way for a decade. Then he woke up and talked to his family—though, sadly, he developed pneumonia soon after and died.





I spent 3 years learning to speak and walk again. It was discouraging at times, but every bit of progress I made inspired me to push myself further. A year after the accident, my physical therapist said, "You'd better get used to the wheelchair because that's where you'll be spending the rest of your life." She didn't say it unkindly—she was just being "realistic." But a voice inside me screamed, *No!* Shortly thereafter I progressed to a walker. Now I use a cane only when I'm on unfamiliar terrain.

Today, almost 9 years later, I can speak almost as well as I used to. And I'm stronger than I ever was. I work out with a trainer twice a week, lifting weights and doing cardiovascular exercise such as step aerobics. One of my greatest triumphs is that I can drive again. In New York, coma victims must retake their driving test; I passed mine with flying colors. I love the freedom it brings me.

Though I'm no longer a practicing dentist, I've taught radiology to dental students and am writing a memoir about my experience—not bad for somebody who was supposedly brain-dead!

"I was blind...then regained my sight"

Greg McLaughlin
50 | Mountain View, NC

WHEN I WAS 3 YEARS OLD, I had a severe reaction to an antibiotic. The drug triggered Stevens-Johnson syndrome, a rare immune condition that attacks the mucous membranes. The corneas of my eyes were very badly affected. I went blind in my right eye, but I could still see reasonably well out of my left eye for most of my youth.

In 1983, when I was 25, I tried to get the vision in my right eye restored through a corneal transplant. The operation failed, and I lost the eye to infection. Meanwhile, my left eye was deteriorating. By 1993, my world was reduced to blurry shadows. I couldn't read. I was 35 and legally blind.

I'm a pastor with a wife and two kids—it was hard on all of us. My children were in early grade school, and I was unable to help much with them.

Then in 2002, I went to Cincinnati for a second corneal transplant. But

THE SCIENCE SAYS | Stem cells bring fresh hope

MEDICINE HAS MADE huge strides in reversing certain kinds of vision loss—the sort that comes from Stevens-Johnson syndrome or chemical burns—by harnessing the power of stem cells. The cells come from cadavers as well as living donors (so few cells are required

that donors do not harm their vision).

The surface of the patient's cornea and scar tissue are removed, and the stem cells are transferred to the eye, where they repopulate its surface. A couple of months later, the surgeon transplants the new

cornea. The stem cells grow over it, promoting rapid healing and then constantly replenishing the cells that make up the cornea's transparent outer covering. Patients must take antirejection drugs for years but are frequently rewarded with good to excellent vision.

this time, a new procedure was done in advance that made all the difference: Corneal stem cells were transplanted to my eye. (Not all stem cells come from embryos—these came from adult eyes.) The cells provided an environment that could sustain the new cornea (see “Stem Cells Bring Fresh Hope,” p. 187).

The night of the transplant, I was allowed to unwrap the bandages. I was recuperating as an outpatient at a motel, and the first thing I did was open the blinds. Outside was a bright yellow truck under a halogen light. Its color and sharpness were amazing. Next I looked at myself in the mirror. Boy, had I aged! When my wife greeted me the next morning, I was struck by how green her eyes are. And seeing my daughters in detail was indescribable.

For months, everyday sights astonished me. One day, while basting a pot roast, I caught sight of the grease bubbles at the bottom of the pan. I just stood there with a goofy smile, watching bubbles rise and swirl and sink back into the grease. Finally my younger daughter came over and asked, “What are you doing?” If she hadn’t, I’d probably still be there, staring.

“I was struck by lightning”

Nina Lazzeroni | 57 | Dover, DE

ON THE GRAY, drizzly afternoon of April 8, 1995, I was standing in a parking lot in Troy, OH, teaching a class on motorcycle safety. There was no thunder, but out of nowhere a blinding flash of lightning slammed into me. The explosion blew out my left eardrum and threw me

into the air. Twelve students were seated opposite me on their motorcycles when the bolt struck. They told me I flew up like a rag doll and landed on my head.

My wet clothing may have saved my life—I think the water conducted some of the electricity around my body instead of through it. At any rate, the lightning apparently jumped to a chain-link fence 20 feet away. There, it traveled down a post into the ground, blowing out a chunk of concrete.

Amazingly, I only briefly lost consciousness. Later, at the trauma center, my heart was sputtering wildly and my blood pressure plummeted. By all rights, the surgeon should have shocked me with paddles, but he confided to me later that he couldn’t bring himself to zap me again. Instead, he managed to stabilize my heart with drugs.

I spent a week in the hospital. The lightning had made my muscles con-



tract so forcefully that they shed bits of their lining into my bloodstream when they relaxed. Because these fragments could climb to dangerously high levels and shut down my kidneys, my blood was constantly tested.

Gradually, I recovered. My shattered eardrum healed, though I still suffer from tinnitus—ringing—in my left ear. My muscles are strong again, though I have permanent numbness in parts of both feet. For many years after the accident, reading was a struggle, and my mind had to work hard to remember simple words such as *table*. But I did crossword puzzles and other brain-teasers, and those exercises helped enormously. Now I don't have nearly as much trouble reading or talking as I used to. And when I tell new friends about what happened to me, they say they never noticed anything wrong.

My personality was also affected.

A friend confided that I became more quick-tempered, snapping at people for no reason, but thankfully, over time, I've mellowed out again.

There was another change that was almost certainly due to the lightning. The electricity enters the body through the eyes, ears, and mouth—and these lines of energy intersect at the hormone-producing glands in the brain. My glands must have been fried, because I abruptly developed such drenching menstrual periods that I was forced to have a hysterectomy. I didn't mourn the loss of my fertility—I'd already had my daughter. And I was desperate to have the operation because the bleeding was so bad.

All in all, my recovery has been remarkable. I still work—I'm a dental assistant—and I continue to teach motorcycle safety and ride. The only difference is that among my biker buddies, I now go by the nickname Stormy!

THE SCIENCE SAYS | Lightning damages nerves and glands

THE TREMENDOUS CHARGE in lightning has been known to fuse dental fillings and make muscles clench so violently that victims dislocate joints. Survivors may suffer severe burns—some arrive at the emergency room literally smoking, says Nelson Hendler, MD, who has treated numerous survivors as clinical director of the Mensana Clinic in Stevenson, MD.

The most immediate danger is that the heart

can simply stop. The long-term consequences vary, but because the nervous system is designed to conduct electrical energy, it often takes the brunt of the blow. Like Lazzeroni, many victims experience permanent neurological damage, including learning disability, memory impairment, and personality changes. In addition, lightning can harm the pituitary and hypothalamus glands,

so impotence and low libido can be problems for survivors, along with chronic pain.

Lightning strikes are most common in July, and between noon and 4 PM. But they can hit at any time and place, so head indoors at the first rumblings of thunder. A car also provides refuge. If you can't reach shelter, crouch down at least 7 feet from tall objects like trees, and wait for the storm to pass.



AT THE FOREFRONT of lower-limb technology are two artificial knees—Otto Bock’s C-Leg and Ossur’s Rheo Knee—that do an amazing job of mimicking what a real leg does. They allow the wearer to speed up or stop on a dime, go down steps foot over foot, and negotiate steep hills and uneven terrain with

confidence. Both employ microprocessors that sense position and knee speed up to 1,000 times a second, which allows them to adjust instantly to changes in the user’s gait and environment.

Their only downside: The prostheses lack the power to hoist the body, so walking up stairs is still awkward.

Electronic limbs may one day be connected to the wearer’s nervous system, allowing the brain’s commands to pass seamlessly to the prosthesis. Of course, even current state-of-the-art prostheses don’t come cheap: The most advanced of the knee-down type costs approximately \$40,000.

“My artificial leg knows my every move”

Leslie Pitt Schneider
39 | Minneapolis

I LOST MY LEFT LEG when I was 6 years old. I was riding a bicycle when a gravel truck ran over me. The amputation was 2 inches above my knee.

When I was recovering in the hospital, I got a prosthesis that was basically just a straight wooden pipe with a foot on the end. It was an unnerving thing to have to trust—it felt like a foreign object stuck onto my body. But I quickly began doing many of the things I used to do. My parents got me a bike fitted with a toe clip, which kept my prosthetic foot in place. I ran, though with my stiff leg it was more like skipping. I even tap-danced—I simply put my new foot into the shoe.

My first year back in school, the kids in my class were incredibly accepting. I was like a recurring show-and-

tell, which I kind of enjoyed. Still, I wouldn’t wear shorts—I was too conscious of being different. And recess was hard. I didn’t have full mobility, so I couldn’t participate in gym class or play kick ball, and I hated being sidelined. Around that time, though, I took up skiing. It was pure elation. I skied one-legged and wasn’t hindered by that klutzy wooden leg!

When I reached seventh grade, some girls started to tease me. Once, on a field trip, a girl told me, “You’re never going to be normal because you’re handicapped.” I cried. I felt so alienated. But guys were great. They treated me the way they did other girls. They’d flirt and joke and ask me out.

Around that time I got fitted with a new prosthesis with a hydraulic knee that had a more fluid feel and looked like a real leg—huge for a looks-conscious teenager. But I still felt awkward on stairs, because I had to plant both feet on each step. Outdoors, I had to angle down hills sideways to

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rid of irritating chemicals. Researchers can't predict who will benefit from a wash-out, though—and surgeon Bruce J. Moseley, MD, who led the sham surgery comparison, argues that any improvement in arthritis patients is due to the placebo effect.

Protect Yourself

Wait a while Arthroscopy is most frequently done after a twist or fall, but those injuries often get better within a few months with physical therapy, anti-inflammatory meds, a cortisone injection—or just the passage of time.

Be skeptical of MRI results Arthroscopy is most apt to help if there's a detached fragment of cartilage or a severe tear—a 3 on a 1-to-3 scale, as rated by a radiologist. But even a bad tear may not cause pain, so ask whether it matches up with the area that hurts. **■**

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The Will to Live

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break my momentum, and occasionally I'd lose my balance.

I met my husband on a chairlift in Colorado when we were in college. I was skiing one-legged at the time; he accepted me for who I was. Apparently, I also inspired him. When I met him, he wanted to pursue a higher degree in philosophy, but after graduation, he decided to become a prosthetist instead, helping to fit people with artificial limbs. He said he wanted to make a difference in people's lives.

About 2 years ago—after countless new legs that were each inadequate in their own way—I progressed to a new prosthesis called a C-Leg. It contains a microprocessor—basically a miniature computer programmed with my own gait patterns, which were measured when I got fitted for the leg. Right away, it made me feel more stable and secure. Before, if I stopped short while playing tennis, my artificial knee would sometimes keep moving. But the C-Leg seems to anticipate what I'm going to do. I can walk straight down a steep hill. I can go down stairs like everyone else, foot over foot, without any awkwardness. And my husband now has trouble keeping up with me.

Prosthetic technology today is incredible. My leg is so lifelike that acquaintances will sometimes pass me at work and notice for the first time that my gait is slightly off. "Oh, did you hurt your leg?" they'll ask me. I love their reaction when I reply, "No, I don't have one." **■**