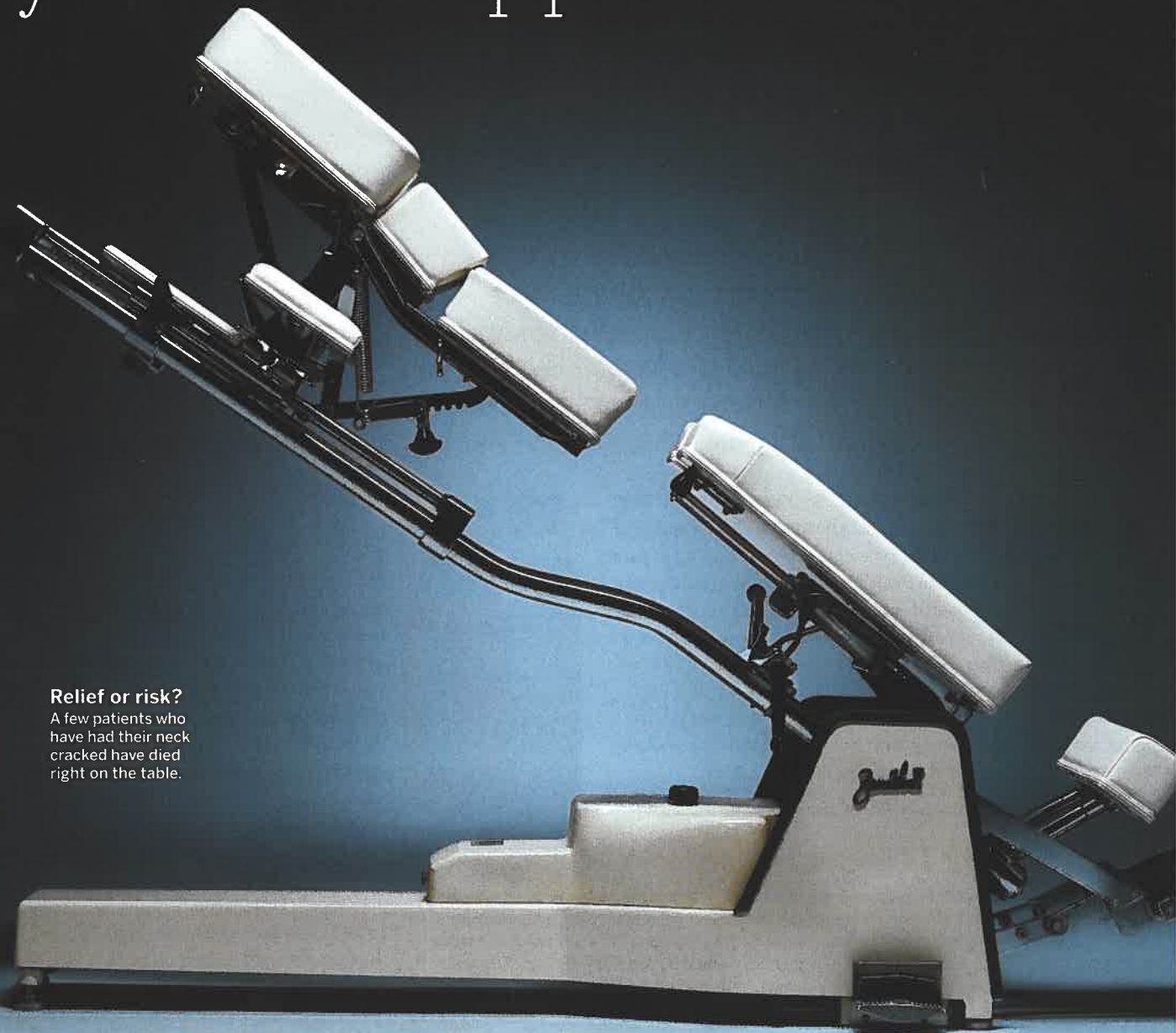


A deadly twist

Chiropractors are causing strokes in young, healthy women. Read this before your next appointment. By Jennifer Wolff



Relief or risk?

A few patients who have had their neck cracked have died right on the table.

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Christa Heck lay crumpled on her right side in the front seat of her SUV, staring helplessly at the dashboard. She tried to right herself, but her body wouldn't obey her brain: One arm was limp, the other floundering uncontrollably. Ten minutes earlier, she'd been at her chiropractor's office for a routine follow-up. But something had obviously gone wrong. Lying virtually paralyzed across her passenger seat, "all I could do was pray someone would help me," she recalls. "I thought I was going to die."

Heck, a 43-year-old mother of four from Mahopac, New York, had been seeing a chiropractor on and off for 20 years to treat headaches and lower-back pain. A pharmaceutical representative, she spent her days driving to sales calls and her nights working long hours at the computer. A few visits to adjust her back and cervical spine—the bones that run up through the neck—always relieved the strain. "I had the impression that it was good for health maintenance," she says. "Not once had I been told there were risks involved."

In November 2003, she'd had her first visit with a new chiropractor recommended by a friend. He snapped her neck to one side, then to the other, and she felt the same pop she had many times before. But 24 hours later, her head still hurt. Then, while cooking dinner, "I turned my head to the left, and the room started spinning and I felt nauseous. It lasted only a second," she says. "I thought it was an inner ear infection."

The next day, Heck returned to the chiropractor and told him about her vertigo, nausea and hurting head. "Let me see if I can get rid of that headache," Heck says he told her, twisting her head to one side until it popped. When he twisted to the other side, however, it didn't crack. He told her to take a deep breath and relax, then massaged her neck briefly before placing his hands on both sides of her head to try again. Once more, her neck didn't pop. "I felt this wave of nausea," Heck recalls. "I left the office a little dazed."

Minutes later, Heck pulled her car up to a convenience store to get some ginger ale to settle her stomach. But when she shifted her SUV into park, she collapsed, the motor still running. She tried grabbing her cell phone, but her hands flailed. Eventually, she inched it between her fingers and after several tries managed to press the keys to speed-dial her husband, Ed. "All he says he heard was me crying and slurring my words, but he couldn't make out any of them," she says. Finally, Ed recognized two words: *Red Mills*, the name of the convenience mart. "He was 45 minutes away," Heck says. "I was terrified."

By the time her husband arrived, Heck felt a little better. She was weak but could sit up and talk. They considered dialing 911 but knew an ambulance would take her to a hospital where Ed once had a bad experience. So instead, he drove her home.

The next day, Heck awoke feeling numb on the right side of her body. Her left eyelid drooped, and the right side of her face was frozen. When she walked, both feet dragged. Ed called family friend M. Mehdi Kazmi, M.D., assistant clinical professor of neurology at Albert Einstein College of Medicine in the Bronx. As the doctor quizzed her over the phone, Heck mentioned she'd just visited a chiropractor.

"Oh, Christa," he said. "I need to see you right away."

Dr. Kazmi examined her only a few minutes before he escorted her across the street to Montefiore Medical Center, where doctors took scans of her neck and brain. "Christa is lucky to be alive," he says. "I knew the moment I saw her that she had had a stroke." And he is convinced that the stroke was caused by Heck's neck adjustment, which tore a critical artery that keeps blood flowing to the brain. "I see at least two cases like this or worse a year," Dr. Kazmi says. "Cervical manipulation is a preposterous thing to do, and it should be banned."

Americans make some 250 million visits to a chiropractor each year, and 105 million of those appointments include neck manipulations, according to the American Chiropractic Association in Arlington, Virginia. In addition to being used for neck, back and headache pain, the treatment is purported by some chiropractors to ease ailments as diverse as asthma, PMS and attention deficit disorder. Chiropractic theory holds that when vertebrae become misaligned, they may put pressure on nerves along the spine, interrupting the nerves' signals to the rest of the body. "Through improving the functioning of the joints, you are at the very least improving overall health," says ACA spokesman William J. Lauretti, assistant professor at New York Chiropractic College in Seneca Falls. "When a spinal joint is not functioning properly, it's a chronic irritant to the nervous system."

Introduced in the late 19th century by the founder of chiropractic medicine, Daniel David Palmer—a Canadian schoolteacher who became famous for his healing touch—neck adjustments are given routinely and repeatedly by U.S. chiropractors, as well as some physicians, physical therapists and massage therapists. But despite patients' enthusiasm for the neck adjustment—45 percent of respondents to a

Self.com poll said they had seen a chiropractor—researchers have not produced definitive proof of its medical value. In 1996, several chiropractic groups commissioned a study from the Rand Corporation, an independent research company in Santa Monica, California; Rand reported that there have not been enough studies to show long-term benefits from cervical manipulations for neck, head and shoulder pain and only sparse evidence of short-term relief. A 2005 study in the *Journal of Manipulative and Physiological Therapeutics* reached a similar conclusion. Earlier this year, an evaluation of chiropractic visits and other complementary treatments for lower-back pain conducted by Harvard Medical School in Boston found the therapies “did not result in clinically significant improvements in symptom relief or functional restoration.” (The researchers did not track whether patients were getting neck adjustments specifically, but the ACA estimates 42 percent of appointments include them.)

In SELF’s online poll, more than 20 percent of women who visited the chiropractor said they felt no better afterward. Eight percent said they felt worse. Injuries that can occur on a chiropractor’s table include soft tissue damage, joint dislocations and bone fractures in the neck and back. The most common problem is disk injury in the neck or lower back, which can be extraordinarily painful. (In 1999, Karen Santorum, wife of former Pennsylvania Senator Rick Santorum, won \$175,000 in court after suffering a herniated disk at the hands of a chiropractor.) But only neck manipulation, not back adjustments, can cause the life-altering side effect Christa Heck had.

According to Heck’s medical records, the chiropractor’s neck adjustment left a 4.5-centimeter tear in her left vertebral artery, one of four pathways that control blood flow to the brain (the others are the right vertebral artery and the left and right carotid arteries). Extreme or abrupt twisting of the neck can damage the inner layer of these arteries, creating a blood clot. If the clot travels north, it can cut off blood flow to part of the brain—the definition of a stroke. In fact, Dr. Kazmi believes Heck had two strokes, one the day after her first neck adjustment, and another immediately following her second. “The damage was done after the first manipulation, then she started throwing clots,” he says. Heck’s chiropractor (who Heck asked not be identified for fear of jeopardizing a legal settlement) said through his lawyer, Stephen P. Haber of White Plains, New York, that Heck’s version of events was

contradicted by “sworn deposition testimony, records of care and test results to say nothing of established principles of chiropractic and medical science” and that he looks forward to trying the matter in court.

Heck’s vertigo and queasiness after her first appointment should have been red flags because both are symptoms of stroke. Chiropractors should tread carefully and do extra screening tests before manipulating the neck of a patient who complains of unusual dizziness, vertigo or nausea, according to an instructional guide published by National Chiropractic Mutual Insurance Company in Clive, Iowa, the nation’s largest chiropractic insurer. “A good chiropractor doesn’t merely grab people’s necks and crack them,” the ACA’s Lauretti says. “You take a thorough exam. If there is a history of dizziness, stroke, visual or auditory disturbances, and to a certain extent a history of migraine, I’m going to be much more cautious.”

Wade S. Smith, M.D., director of the Neurovascular Service at the University of California at San Francisco, was the lead author of a 2003 study in the journal *Neurology* that confirmed the connection between cervical manipulation and stroke. In the study, Dr. Smith says, patients with strokes caused by torn arteries were nearly five times more likely to have had a recent neck adjustment than those with strokes caused by something else, indicating that “recently seeing a chiropractor is an independent risk factor for stroke.” And although

How a neck crack leads to a stroke

Chiropractic theory holds that adjusting the **1 cervical spine** can ease pain. However, this action may tear one of the **2 vertebral arteries**, which run through either side of the spine and provide blood to the brain. In rare cases twisting can tear the nearby **3 carotid arteries**. If the whole artery or its inner lining tears, a blood clot may form. If a clot moves into the brain via the **4 cerebral arteries**, the result is a stroke.



researchers aren’t sure why, young women tend to have slightly more of the injuries. Brittmarie Harwe, 40, of Wethersfield, Connecticut, received an out-of-court settlement of \$900,000 after a 1993 manipulation that permanently paralyzed one of her vocal cords and left her unable to swallow food; she nourishes herself through a stomach tube. In December 2006, Rachelle Smith, a 32-year-old mother of five in Olathe, Kansas, settled a case with her chiropractor for undisclosed damages and \$70,000 in medical costs. She says that when she began to vomit after a neck adjustment—a sign of what would turn out to be a stroke—the chiropractor assured her that her body was simply “releasing toxins.”

“I’ve seen more cases of vascular injury following chiropractic manipulations than just about anybody, and these people’s lives are ruined,” says Alan Bragman, an Atlanta chiropractor who has served as an expert witness in some 900 chiropractic cases in the United States, Canada and Puerto Rico. “I’ve

known of seven or eight people who died right on the table or shortly thereafter,” he adds. Kristi Elaine Bedenbaugh, 24, of Little Mountain, South Carolina, died in 1993 three days after a cervical manipulation for a sinus headache and a few months before her wedding. In 1998 in Saskatoon, Saskatchewan, 20-year-old restaurant supervisor Laurie Jean Mathiason fell into a coma on her chiropractor’s table minutes after a neck manipulation she received for a tailbone injury; she was dead three days later. “The twist was so violent that it tore her artery clear through,” says her mother, Sharon Mathiason. “In our wildest dreams, our family had never imagined that a perfectly healthy kid in the prime of her life could have a stroke. But at the hospital, we were bombarded with doctors coming into the waiting room and saying, ‘Don’t you know that [if you go to the chiropractor], never let them touch you above the shoulders?’ I have made it my life’s campaign to warn people of the risks of chiropractic neck adjustment.”

The stories are frightening. But the actual risk for injury remains a topic of fierce debate. Estimates vary wildly as to how many neck manipulations will lead to a stroke—numbers from 1 in 5.8 million treatments (from an analysis of data from the Canadian Chiropractic Protective Association, a chiropractic malpractice insurer in Toronto) to 1 in 400,000, according to a study published in a 1996 issue of the *Journal of Manipulative and Physiological Therapeutics*. A 2003 survey of French doctors by the Hospitals of the University of Strasbourg, France, found that the incidence of post-manipulation vascular injuries was 30 times higher than had been published in medical journals. One reason the numbers are so varied may be that there is no formal system for reporting complications from chiropractic manipulation.

Chiropractors and the organizations that represent them say the dangers of manipulating the neck have been overplayed. In all but a handful of states, no law or written ethical guideline requires them to alert patients about the possibilities of damage, and most of them don’t. “A stroke following a manipulation is phenomenally rare,” Lauretti says. “We want to give information to patients to empower them, but at what point does that information become meaningless? With this issue, we are approaching that point.”

Statistically speaking, taking aspirin or another nonsteroidal anti-inflammatory drug for pain is potentially far more toxic than getting one’s neck cracked; NSAIDs account for about 7,500 deaths per year, according to researchers from Stanford University in California. The difference is that aspirin is a

scientifically proven pain reliever, and neck manipulation is not, says Brad Stewart, M.D., a neurologist in Edmonton, Alberta, with a special interest in chiropractic stroke. “The expectation of benefit is almost negligible. The risk, though small, is very real,” says Dr. Stewart, one of whose patients had part of her brain removed after a cervical manipulation mangled both of her vertebral arteries. “You can’t predict who this will happen to, and for that reason alone, it just shouldn’t be done.”

As Lauretti notes, almost any sudden movement of the neck can tear an artery—leaning your head back to drink a soda, for instance, doing yoga, stargazing or craning to check your blind spot as you back out of the driveway. Medical journals have reported numerous cases of women who have been seriously injured having their hair washed at a salon. According to a study from Cedars-Sinai Medical Center in Los

Angeles, one-fourth of arterial dissections are caused by abnormalities that already exist in the connective tissue that make certain people particularly vulnerable to the injury. “It’s not a simple black-and-white issue that someone who visits the chiropractor and then suffers a stroke can say clearly it’s the chiropractor’s fault,” says Wouter I. Schievink, M.D., director of the vascular neurosurgery program at Cedars-Sinai. “It’s not always clear what came first, the dissection or the manipulation.”

Given the enormous amount of chiropractic visits in this country, Dr. Schievink says, the risk per visit is tiny. On the other hand, patients see chiropractors an average of 10 times during treatment. “If you take into consideration how many times they go and how many manipulations are performed, it does become a public health concern,” he says. “It’s a low risk but potentially a life-threatening one.”



Heck at home, three years after her stroke

Young women tend to have more chiropractic strokes.

It’s the late fall of 2006 and Christa Heck looks like any other professional woman walking along Manhattan’s East Side. Her light-brown hair is freshly highlighted, her dark-blue pantsuit neat and stylish. But when she steps from the street to the curb, she stumbles to the right. Certain the fumbling has gone unnoticed, she continues to chat, but her words are ever so slightly slurred.

To remember her meeting today, Heck says that she placed notes by her bed, on her bathroom door and on the microwave oven in the kitchen. “Otherwise, I might not have remembered to come,” she says, pulling medical records from a large manila envelope. She points to a 2005 neurology report that suggests she has a generalized brain injury with symptoms such as memory loss, impaired motor coordination and slower mental processing. (continued on page 242)

A deadly twist

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Heck speaks as if her true self was lost in the past—about her 3.97 grade point average in college, her plans before the stroke to go to law school and her once phenomenal ability to multitask, caring for four children while being the sole breadwinner for her family when Ed was forced onto disability. These days, her girls—ranging in age from 15 to 25, three of them stepdaughters from Ed's previous marriage—don't rely on her so much. "I can't tell you how many times I've simply forgotten to pick up my youngest daughter from soccer practice," she says. Nor does she see her friends as often as she used to. "I asked one of my friends if I had changed, and she said, 'Honestly, Christa, you've changed a lot.' It breaks my heart."

Heck continued to work for two years after the stroke, her manager adjusting her assignments to help her cope. But when her company introduced a new product for her to sell, Heck resigned. "I couldn't handle too many things at once," she says. She has considered a job in retail, but her psychiatrist told her she might find it difficult when the store got busy and recommended she take a quiet back-office job.

Meanwhile, she spends time working with Victims of Irresponsible Chiropractic Education and Standards (VOICES), a fledgling advocacy group comprising families of 60 victims of chiropractic stroke, five of whom have died. The group is urging Congress to ban cervical manipulation. While federal action seems unlikely, another group of victims in Connecticut is supporting bills that would require that state to track chiropractic injuries and add chiropractors to a public database of physician credentials, disciplinary actions and malpractice suits. A third proposed law would require Connecticut chiropractors to obtain written consent before doing a neck adjustment, explain the risk for stroke and detail its symptoms. "Had I known stroke was a risk, I would have recognized that something was wrong before going back a second time," Heck says with tears in her eyes. "I miss the old Christa so much. Had I known better, I'd still have her." ■