

HEALTH & SCIENCE



Island iguanas are threatened. Blame cats.

Adult lizards are fierce, but juveniles fall prey to hungry, nonnative felines

BY MURRAY CARPENTER IN ANEGADA, BRITISH VIRGIN ISLANDS

Michael Young stands on a low bluff near a salt pond, gestures toward a snarl of head-high shrubs and says, “You can be certain there are some iguanas near here.” ¶ The flat, arid, salt-blasted island looks like a tough place to scratch out a living. But to the Aneгада rock iguana, *Cyclura pinguis*, this is more than home. ¶ “This is paradise for them,” says Young, who works on iguana conservation for the National Parks Trust of the Virgin Islands. ¶ The 10-mile island has fewer than 300 residents and is best known for its extensive coral reef, sandy beaches and flock of flamingos. ¶ For millions of years, the iguanas — up to five-foot-long and 15 pounds — were the largest vertebrates on this landscape. Though the adults are fierce, the iguanas have been brought to their scaly knees by improbable predators — feral cats that prey on juveniles.

SEE IGUANA ON E6

A critically endangered Aneгада rock iguana, *Cyclura pinguis*, at the Houston Zoo. The species lives on Aneгада, which is part of the British Virgin Islands.

JOEL SARTORE

PERSPECTIVE

How my dryer door gave me a concussion

BY MELANIE D.G. KAPLAN

In April, I dusted off my bike and wiped cobwebs from the handlebars. As I strapped on my helmet and cruised down the block, I rejoiced. It was the first anniversary of my brain injury, and I finally felt recovered and confident enough to pedal in the city again.

Although I ride frequently, I didn't hurt myself biking — or motorcycling or rock-climbing, other risky outdoor pursuits I've enjoyed. My injury resulted from a mundane accident in my home that could happen to anyone.

Early one morning, as I sorted laundry on the floor in front of my stacked washer and dryer, the dryer door silently swung open to a 90-degree angle. I stood up quickly and whacked my head square into the metal door.

Ouch. Immediately, I felt lightheaded, and a large bump swelled on top of my head. But I didn't bleed or pass out. I even considered going on the bike ride I'd planned that morning before thinking better of it. I largely carried on with my day, feeling a bit fuzzy-headed. It wasn't until the next day, when I still felt out-of-sorts and my neighbor said I looked pale, that I walked to an urgent care clinic. The doctor confirmed what I had suspected: I had a concussion.

Before last spring, I thought I had a reasonable understanding of concussion, which is a mild traumatic brain injury (TBI). Sports, falls and car accidents are frequent causes, and researchers are looking more closely at intimate partner violence as well. But I'd never

SEE CONCUSSION ON E4

CLIMATE & ENVIRONMENT

The swift march of climate change in North Carolina's 'ghost forests'

BY BRADY DENNIS

ALLIGATOR RIVER NATIONAL WILDLIFE REFUGE, N.C. — As the first light of day flickers across the Croatan Sound, Scott Lanier surveys the gray, barren tree trunks that stand in every direction, like massive gravestones marking the once-vibrant landscape.

“The forest is just retreating,” says Lanier, manager of this 160,000-acre federal wildlife refuge near North Carolina's Outer Banks.

Lanier first came here to work for the U.S. Fish and Wildlife Service in the mid-1980s and stayed several years before heading to postings around the Southeast. When he returned in 2006, a singular question reverberated in his mind as he drove around:

Scientists, activists race to study the rapid loss of trees and marshland near the Outer Banks

“What happened to the trees?”

The startling transformation he witnessed then has only accelerated in recent years. “It has changed dramatically, and it has changed very quickly,” he says.

Few examples of climate change are as unmistakable and arresting as the “ghost forests” proliferating along parts of the East Coast — and particularly throughout the Albemarle-Pamlico Peninsula of North Carolina.

Places where Lanier once stood on dry ground are now in waist-deep water. Forests populated by towering pines, red maple, sweet gum and bald cypress have transitioned to shrub land. Stretches of shrub habitat have given way to marsh. And what once was marsh has succumbed to the encroaching sea.

SEE FORESTS ON E5

Many kids aren't getting needed vision screenings

BY COLLEEN DEGUZMAN

Jessica Oberoi, 13, cannot remember when her eyesight started getting blurry. All she knows is that she had to squint to see the whiteboard at school.

It wasn't until last fall when her eighth-grade class in Bloomington, Ind., got vision screenings that Jessica's extreme nearsightedness and amblyopia, or lazy eye, were discovered.

She has been going through intense treatment since then, and her optometrist, Katie Connolly, said Jessica has made great improvements — but her lazy eye, which causes depth perception problems, may never go away.

The chances of it being completely corrected would have been much higher if her condition had been caught earlier, said Connolly, chief of pediatric and binocular vision service at Indiana University's School of Optometry.

Jessica is one of the countless students falling through the cracks of the nation's fractured efforts to catch and treat vision problems among children.

The Centers for Disease Control and Prevention estimates that more than 600,000 children and teens are blind or have a vision disorder. A recent opinion article published on JAMA Network notes that a large number of these children could be helped simply with glasses, but because of high costs and lack of insurance coverage, many are not getting them.

Yet the National Survey of Children's Health, funded by the U.S. Health Resources and Services Administration, found that in 2016-2017 a quarter of children were not regularly screened for

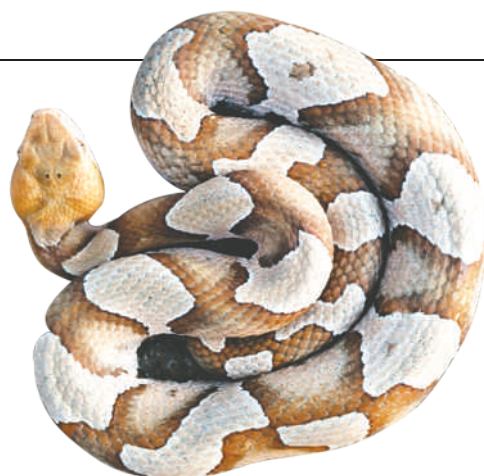
SEE VISION ON E4

COPPERHEADS

Be careful as the snakes are good at hiding.
E2

LIVERS

Hepatocytes stay young at less than 3 years.
E3



ANOREXIA

1 in 3 eating-disorder patients are men.
E6

PANDEMIC

Remote learning has hurt some groups of teens.
E3

I found out that concussions are complicated injuries

CONCUSSION FROM E1

thought about freak head injuries and lingering symptoms until I spent the better part of a year recovering from what one friend described as my laundry trying to kill me.

'No definitive answers'

A concussion, caused by a blow to the head or whiplash, occurs when the brain rattles or twists within the skull and brain cells stretch and shear, causing a chemical change. It's a complicated injury.

"We sometimes see a person who survives a gunshot wound, in which the brain doesn't rotate, and their outcomes tend to be better," said Kristen Dams-O'Connor, director of the Brain Injury Research Center of Mount Sinai in New York.

Every concussion is unique, so symptoms and recovery times vary between individuals, even if they were hit with the same force on the same part of their head, experts say. Many people, for instance, could have collided with their dryer door and forgotten all about it by breakfast, my doctors told me.

Although our understanding and awareness of concussions have advanced considerably in the past 20 years, the field is still in its infancy. When I interviewed almost a dozen experts, I heard a lot of "no definitive answers" and "research is still emerging." Among my questions: What determines who is more likely to get a concussion and have prolonged symptoms?

"That's the million dollar question," said Marilyn Kraus, medical director of the Concussion and Traumatic Brain Injury Clinic at George Washington University School of Medicine and Health Sciences. "I'm humbled by how much we don't understand about this." Kraus said determining how to treat symptoms long-term and appreciating how they drive each other is probably more art than science.

Women, whose necks generally aren't as strong as men's, are more likely to get concussions, as are children and the elderly, who are at greater risk of falling. Some people are more vulnerable because of their risk tolerance or environment: Maybe they're popping wheelies on their bike or live in a violent neighborhood. Other individuals may be more susceptible because of preexisting conditions, such as psychiatric or vestibular issues that affect balance.

Tom McAllister, lead principal investigator for the Concussion Assessment, Research and Education (CARE) Consortium, a partnership between the NCAA and Defense Department, said there is significant overlap between the parts of the brain injured in a TBI and those affected by depression.

"If you have a psychiatric illness before a head injury, you're at higher risk of a concussion," he said, "and brain injury is a pretty significant risk factor for developing depression, anxiety and PTSD."

Studies also show that previ-



How to treat your injured head

Some people get a concussion and do nothing to treat the symptoms. I tried numerous treatments and therapies. The good news, experts say, is that people in both camps recover. "But you'll heal faster with interventions," physical therapist Mike Taber said.

If you have symptoms — especially longer than a few weeks — these suggestions may be helpful.

Komal Patel, assistant professor of neurology and rehabilitation medicine at George Washington University, said the brain heals while we sleep.

"Set times to go to sleep and wake up, and stay consistent," he said. I kept a pretty strict sleep schedule and felt noticeably worse when I made exceptions.

Relax your brain through meditation, yoga, deep breathing, journaling, art therapy, aromatherapy and walking in nature. For headaches, Patel recommended a natural supplement called MigreLief and over-the-counter medications. Preventing stress, eating healthy meals, staying hydrated, exercising and abstaining from alcohol also promote recovery.

Stay active. I started with walks and physical therapy and eventually added light weightlifting, swimming and stand-up paddleboarding. Explore concussion-specific rehabilitation beyond PT: The George Washington clinic offers occupational, cognitive and speech therapy to help patients with visual fatigue, sleep/time management and work reentry. I found acupuncture incredibly relaxing, and it often cleared the fog from my head. My

acupuncturist showed me several pressure points for DIY massage.

Blue-light filtering eyeglasses can help with eyestrain, as can computer settings that warm the display colors. The f.lux app works the same way. Use something more reliable than your brain to manage screen time (I bought a set of colorful sand timers).

I scheduled a call with my therapist to talk about feelings of isolation associated with having an invisible injury and grief over not being able to do many of the things that make me feel like myself — with no end in sight.

She suggested Elizabeth Lesser's book, "Broken Open: How Difficult Times Can Help Us Grow." I also read "Coping With Concussion and Mild Traumatic Brain Injury: A Guide to Living With the Challenges Associated With Post Concussion Syndrome and Brain Trauma," rereading one passage multiple times: "Perhaps the greatest impact of concussion is psychological. An unexpected, unexplained inability to function can shake you to the core."

Ask for help when you need it, and seek support from people who have recovered from concussions. What one friend told me was critical in my mind-set: Recovery doesn't follow a straight trajectory — there will be ups and downs along the way.

The Centers for Disease Control and Prevention has more information on concussions for adults and for children and teens at CDC.gov.

—Melanie D.G. Kaplan



PHOTOS BY MELANIE D.G. KAPLAN

Melanie D.G. Kaplan suffered a concussion when she hit her head on the open door of her clothes dryer. "I'd never thought about freak head injuries and lingering symptoms until I spent the better part of a year recovering from" the accident, she writes.

ous concussions and a history of migraines, motion sickness and sleep disorders can prolong or complicate recovery. I checked the migraine and motion sickness boxes. I'd also had another concussion, decades ago. But then, I recovered in a couple weeks, typical for about 80 percent of patients.

Stimulate your brain

"It feels like there's a disco ball behind my eyes," I told my mom two weeks after my injury. I had pushed through my symptoms for a work deadline, and soon, I could barely look at any kind of screen. My mom worried I'd further damaged my brain and convinced me to go to the emergency room, where doctors observed my eye movement and coordination, asked me questions and confirmed the earlier diagnosis. My discharge papers instructed me to stay off screens, nap when needed and visit GW's concussion clinic. So I returned home, turned off my computer and started healing.

In the past, post-concussion protocol involved cocooning in a dark room with no stimulation until symptoms subsided. But today, the accepted treatment is to avoid physical activity for 24 to 48 hours, then begin moderate exercise. Studies show that strict, prolonged rest can actually be detrimental to recovery. But overdoing it is also problematic. It can take time to find the right balance between rest and activity.

After my ER visit, vertigo, fatigue and brain fog continued for more than a month, so I mostly cleared my work calendar. I scheduled one phone interview and completely forgot about it. We rescheduled, and I had to break the call in half because I struggled to concentrate. Small tasks were daunting, continually reminding me of my limitations.

At the concussion clinic, physical therapist Mike Taber helped me set up a schedule to regulate my screen time, starting with five minutes followed by a 30-minute break. Over several appointments, he prescribed increasing-

ly challenging eye exercises, daily walks and small-dose exposure to high-stimulation destinations such as grocery stores.

Often I'd show up for appointments with an assortment of head pains, concerned that I'd pushed too hard or reinjured my head. "Nothing you're going to do will damage your brain," Taber assured me. "It's normal to have setbacks, but don't freak out."

At Taber's suggestion, I charted my symptoms, sleep, exercise, stress and headache medication, grateful for improvement over time. I recorded milestones: playing a board game without dizziness, visiting two stores in one day, driving several hours without a nap. One weekend around the six-month mark, I drove a long distance and stayed up late, yielding relapse symptoms — including tenderness at the impact spot. Some days I had headaches or vertigo and wasn't sure whether to attribute them to the concussion. Experts later explained to me that this line of thinking — that any symptom I experience could be traced to the concussion — creates a vicious cycle.

Certainly, having an open-ended recovery timeline can be disheartening. That is why Kraus sometimes tells her patients complete healing may take as long as two years.

"Some people hear the concussion diagnosis and think they're doomed," Dams-O'Connor said. "They're not prepared for the fact that the vast majority have full recovery within a few days or weeks. It's that hollow in your heart, that feeling in your belly that you have a headache after a stressful day or vertigo on a bumpy road, and now you worry it's from the concussion. Our minds play tricks on us."

These days, I remain vigilant with my sleep and feel lousy if I spend too long at the computer or behind the wheel — which may or may not be related to my concussion. I go days without thinking of my injury.

But I never open my dryer door mindlessly. And I wonder if I ever will.