



Rusk Rehabilitation's outpatient physical therapy gym is located on the 16th floor of the new Ambulatory Care Center.

Karsten Moran

Fourteen Floors of Good Fortune

New Ambulatory Care Center Brings Patient-Centered Care to Greater Heights

Fact: One in four American households uses only a wireless phone. Fact: Outpatient visits nationwide doubled over the past 25 years, while inpatient hospital admissions have declined by 10%. Two statistics that have nothing in common. Two trends that are totally unrelated. But in the case of NYU Langone Medical Center's new Ambulatory Care Center (ACC), these developments represent a stroke of serendipity, a convergence that spelled good fortune.

The 24-story tower at 240 East 38th Street—a monolithic octagon of black glass bookended by soaring limestone facades—has served as a switching center for Verizon (and its predecessors) since 1967. The telecommunications company has been converting its properties to commercial condominiums to sell unused space that was previously occupied by mechanical equipment long rendered obsolete by the proliferation of cell phones. Learning that Verizon's

nearby facility had acres of interior space for sale, NYU Langone was all ears. The Medical Center was in need of vast amounts of space to relocate various clinical programs as part of its ambitious campus transformation. A deal was clinched, and 327,000 rentable square feet of office space on 14 floors (more than half the building's volume) is being converted into a state-of-the-art, patient-friendly outpatient facility just a few blocks north of the Medical Center's main campus.

(continued on page 7)



Beatrice De Gese

When NYU Langone's hospitalist program was launched in 2004, Dr. Katherine Hochman (center) was the first and only physician of her kind at the Medical Center. Now there are 28.

The Doctor Is In—24/7

Hospitalists—Physicians Who Care Solely for Inpatients—Are Perhaps a Doctor's Best Friend and a Patient's Greatest Ally

It's late morning, and Katherine Hochman, MD, assistant professor of medicine and assistant chief of medicine at NYU Langone Medical Center's Tisch Hospital, has already visited eight patients on rounds, presided over a 40-minute case review with nurse practitioners, and fired off a volley of calls on her cell phone to private physicians and family members of patients under her care. But it's the ninth patient visit that reveals the most about Dr. Hochman's practice.

Dr. Hochman enters the room of an elderly woman who, the day before, had been transferred to inpatient hospice at NYU Langone for a tracheotomy. "How are you doing?" she asks, concern written across her face. The question, however, is not addressed to the patient, but to her husband of 60 years, who sits stoically at her bedside.

After leaving the room, her visit complete, Dr. Hochman says, "I spent most of my time with the husband because he was actually suffering more than the patient. The families are our partners here, and we offer compassionate care to them as well."

Dr. Hochman is a hospitalist, a physician trained in internal medicine who cares solely for inpatients. When NYU Langone's hospitalist program

(continued on page 3)



From the Dean & CEO

When I took the helm of this institution five years ago, becoming NYU Langone Medical Center's 15th dean and CEO, I noted in my investiture speech that I felt a combination of awe and humility. Awe because I had been at the Medical Center long enough to know a good deal about its distinguished history and tradition. Humility because I knew that to lead NYU Langone where I felt it should go—to fashion it into a world-class, patient-centered, integrated academic medical center—would require a Herculean effort on the part of our entire community, all 17,000 employees.

My investiture speech focused on several key goals: getting our financial house in order . . . rigorously pursuing philanthropy . . . creating a culture of mutual respect . . . attracting and keeping the best people . . . investing in IT . . . developing rigorous metrics . . . augmenting our scientific portfolio . . . creating strategic clinical programs in

areas like musculoskeletal disease, neuroscience, and children's health . . . developing a new curriculum for the School of Medicine . . . providing better student housing. I'm proud to say that in the relatively short span of half a decade, we've done all of those things, and the reason we've been able to accomplish so much so fast is that we've done them together. In a word: teamwork. Thank you all for making me look so good.

Robert I. Grossman, MD



NYU Langone Achieves Top Score in Nationwide Hospital Safety Survey

NYU Langone Medical Center is one of just two New York City hospitals awarded an A ranking—the highest score given—by The Leapfrog Group, based on the results of its annual Hospital Safety Survey. More than 2,600 hospitals in the US were rated A, B, C, D, or F for safety, based on 26 measures of publicly available hospital safety data. NYU Langone's A rating evidences the medical center's overall capacity to keep patients safe from infections, injuries, and medical and medication errors.

According to a 1999 report by the Institute of Medicine (IOM), up to 98,000 Americans die each year due to preventable medical errors in hospitals. The IOM report was the impetus behind the formation of The Leapfrog Group, an independent, national, not-for-profit organization that works toward making giant "leaps" forward in the quality, safety, and affordability of healthcare. To see NYU Langone's scores as they compare nationally and locally, visit hospitalsafetyscore.org.

A Curveball Called ADHD

Admirers jockeyed for autographs from and photos with New York Mets outfielder Andres "Yungo" Torres, who smiled, patiently posing with his arm around kids wearing team jerseys. It was Torres's first night off after 20 consecutive games, and he was spending it in Farkas Auditorium at a screening of the rough cut of *Gigante*, a documentary about his life.

Gigante (Spanish for "giant") tells the story of how Torres has battled attention deficit hyperactivity disorder (ADHD), a condition that nearly hobbled his baseball career. As he took the stage to talk about his struggles, he choked up. "I have this condition," he said through tears. "It's hard." Shielding his eyes with his hand, he fought for control, then sobbed. The crowd urged him on, but Torres was unable to continue. In that moment, the distraught baseball star displayed some of the challenges of ADHD.

Torres was first diagnosed in 2002, after a coach for a Detroit Tigers AA minor league team recognized that Torres had the same inability to pay attention that plagued his own recently diagnosed son. But Torres refused medication. Despite incredible determination—repeatedly changing his batting style, practicing every available moment—Torres's mind raced so much that he'd forget his coach's instructions and lose focus while at bat. In 2007, he finally began treatment, soon noticing a dramatic improvement in his ability to concentrate. By 2009, Torres, who was taking medication consistently for the first time in his life, finally made the major leagues at age 31, joining the San Francisco Giants and winning a World Series championship ring.

For cultural reasons, men in the Hispanic community can be reluctant to seek help, notes Chusy Haney-Jardine, *Gigante's* producer and director. That makes Torres a powerful role model. As *Gigante* shows, medications are not always a simple solution. Torres has struggled with side effects and with finding the right dose and timing. Nevertheless, he takes ADHD in stride, saying, "You have to own it before it owns you."

Back onstage after composing himself, Torres spoke of his passion to help others with ADHD, which afflicts 4% of adults and 6 to 9% of school-age children. The audience gave him a standing ovation. After the film, Lenard Adler, MD, professor of psychiatry and child and adolescent psychiatry, chaired a brief panel discussion. He and Torres were joined by F. Xavier Castellanos, MD, professor of child and adolescent psychiatry, radiology, and physiology and neuroscience at NYU Langone's Child Study Center. "NYU Langone's Adult ADHD Program has been at the forefront of research and treatment since 1995, but our work is far from done," said Dr. Adler, the program's director. "More than three-quarters of the 8 to 9 million American adults with ADHD remain untreated."

Web Extra: for a Q&A on children afflicted by ADHD with Dr. Timothy Verduin, clinical director of the Institute for Attention Deficit Hyperactivity and Behavior Disorders at NYU Langone's Child Study Center, see "You Mean I'm Not a Bad Kid?" at www.newsandviews-digital.com.

Medical Center Earns Honor Roll in U.S. News & World Report Ranking

NYU Langone Medical Center has been ranked number 11 in the nation on *U.S. News & World Report's* 2012–2013 "Best Hospitals Honor Roll," with 13 nationally ranked specialties, including top-10 rankings in geriatrics, neurology and neurosurgery, orthopaedics, rehabilitation, and rheumatology. The Medical Center was once again ranked number 2 in the New York metropolitan area based on the number of its nationally recognized specialty areas. State rankings were introduced this year, and NYU Langone also ranked number 2 in New York State.

The Medical Center's 13 nationally ranked specialty areas are cancer, cardiology and cardiac surgery, diabetes and endocrinology, gastroenterology, geriatrics, nephrology, neurology and neurosurgery, orthopaedics, otolaryngology, pulmonology, rehabilitation, rheumatology, and urology. Obstetrics and gynecology was also ranked as a "high-performing" specialty. For 23 consecutive years, NYU Langone's Rusk Rehabilitation program has ranked in the top 10 nationwide and number 1 in New York State.

For this year's 23rd annual edition, *U.S. News & World Report* analyzed some 5,000 hospitals in 16 specialties on the basis of mortality rates, patient safety, and reputation. Fewer than 150 hospitals are nationally ranked in at least one of 16 medical specialties. The "Best Hospitals" issue can be viewed at <http://health.usnews.com/best-hospitals>.



116 NYU Langone Physicians Named among "Best Doctors" in New York

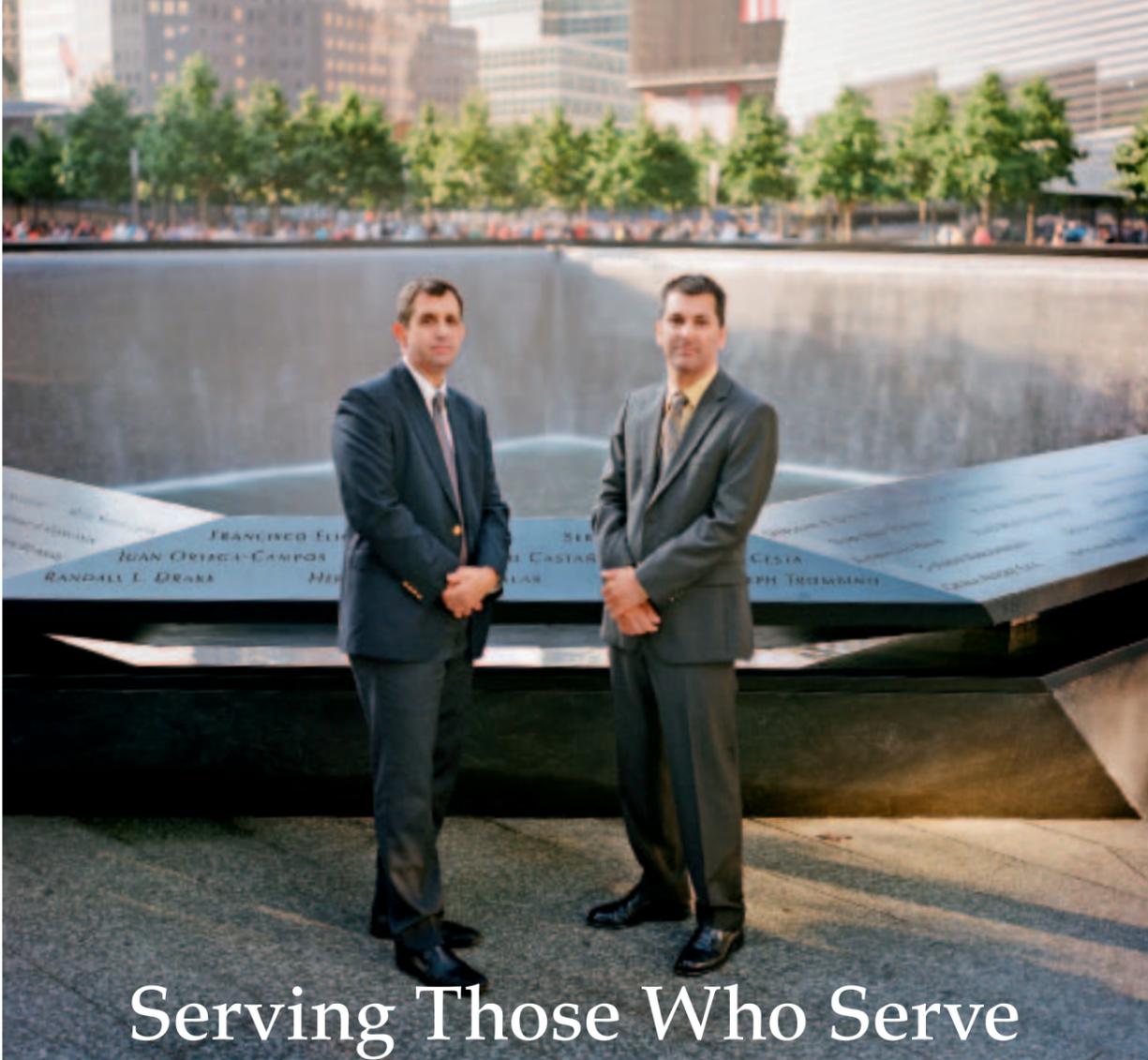
In its 2012 "Best Doctors" issue, published in June, *New York* magazine recognized 116 physicians from NYU Langone Medical Center as among New York City's finest medical practitioners. This year's list includes 10 department chairs, hailed for their expertise in cardiothoracic surgery, dermatology, general surgery, neurosurgery, orthopaedic surgery, otolaryngology, radiation oncology, reconstructive plastic surgery, rehabilitation medicine, and urology.

The issue also features Steven Flanagan, MD, the Howard A. Rusk Professor of Rehabilitation Medicine and chair of the Department of Rehabilitation Medicine, and Mark Pochapin, MD, director of the Division of Gastroenterology in the Department of Medicine, both of whom answer reader queries in "Ask a Best Doctor." In another article, "The Graduates," nine graduates of NYU School of Medicine offer vignettes about the journey from student to physician.

In all, the magazine listed 1,160 physicians in 63 specialties, drawn from the 6,000 primary care and specialty care physicians in the tristate area featured in *Top Doctors: New York Metro Area*, an annual guidebook published by Castle Connolly Medical Ltd. For a complete list of honorees, visit nymag.com/bestdoctors/.



Dr. Xavier Castellanos, Andres Torres, and Dr. Lenard Adler.



Serving Those Who Serve

On a Fateful September Morning More Than a Decade Ago, Two Surgeons Made a Pledge as Heartfelt and Solemn as the Hippocratic Oath

As it did for so many, September 11, 2001, gave new meaning to the lives of Glenn Jacobowitz, MD, and Omar Bholat, MD, both of whom found a new purpose for their medical training on that day. Dr. Bholat, assistant professor of surgery and associate director of trauma surgery at Bellevue Hospital Center, specializes in swift, no-nonsense repairs to those who are gravely injured, with the singular goal of saving their lives. Dr. Jacobowitz, associate professor of surgery and chief of vascular surgery at the Manhattan VA Medical Center, specializes in delicate, intricate repairs of the blood vessels, a meticulous mending that is as much art as science.

On the morning of 9/11, Dr. Jacobowitz was in a conference room on the 15th floor of the Schwartz Health Care Center with a clear view of lower Manhattan. When the second plane hit, he saw it explode. At the same moment, Dr. Bholat was in his apartment on the Upper West Side, watching the same horrific event on TV. Minutes later, both men were rushing south to help—Dr. Jacobowitz to what was then NYU Downtown Hospital, and Dr. Bholat to a triage center at South Ferry. In the years since, 9/11 continues to resonate in their lives.

Until that fateful morning, Dr. Bholat had planned to go into private practice and was looking forward to a calm, structured life. “9/11 made me terribly angry,” he says. “I knew war was coming, and I wanted to be part of it.” Dr. Bholat joined the US Army Reserve, serving two 90-day tours in Iraq, in 2003 and

2008, as part of a forward surgical team, a unit designed to move close to fighting forces so that they can quickly provide care to the wounded. “These teams are designed to do resuscitative surgery, to save lives, and to move the wounded to a combat support hospital, where surgery can be completed,” he explains.

Dr. Bholat’s experience as a trauma surgeon made him invaluable, and much of his time was spent operating on soldiers who were victims of so-called improvised explosive devices (IEDs)—homemade bombs that cause devastating injuries, particularly to the unshielded extremities. The most devastating casualty he witnessed was in Mosul in 2008. On Christmas morning, a fellow trauma surgeon and good friend, Maj. John Pryor, MD, was walking to the hospital after attending services when an enemy rocket killed him instantly. “I happened to be about 30 feet away,” Dr. Bholat recalls, still in disbelief. When Dr. Bholat and his wife had their third child, they named him John in honor of his fallen friend.

Upon his return home, Dr. Bholat, recently promoted to the rank of lieutenant colonel, was gratified that some of what he had learned in war had a benefit. Studies of combat trauma have determined that the number one preventable cause of death is hemorrhaging. The solution turned out to be simple: a tourniquet. Once thought to be a risk to life and limb, tourniquets are so effective, in fact, that every soldier in a combat zone is issued one. When Dr. Bholat returned to Bellevue, he began using them in the trauma room. Then, he bought three for the nurse manager, who also began to use

Dr. Glenn Jacobowitz and Dr. Omar Bholat visit the 9/11 Memorial in June 2012, returning to the scene of the tragedy for the first time since they volunteered their surgical expertise on September 11, 2001.

them. “She eventually bought 50,” he explains, “and now they’re used routinely.”

Dr. Bholat’s severely wounded patients were ultimately transported to Landstuhl Regional Medical Center in Germany, the largest American military hospital outside the US. There, the wounded get further treatment and are prepared for transfer back home. Landstuhl has no vascular surgeons on staff, and Dr. Jacobowitz became aware of this when the Society of Vascular Surgery asked its members to volunteer there for two weeks. “I think I’ve had it pretty good,” confides Dr. Jacobowitz. “I wanted to give something back to the men and women who are sticking their necks out for us every day.”

In December 2011, Dr. Jacobowitz found himself in Germany, treating combat wounded flown there from Afghanistan. “I’ve seen multiple gunshot wounds. I’ve seen people cut in half by subway trains,” he explains. “But I’ve not seen this kind of trauma.”

Once again, the insidious IED was responsible. Blast injuries, they’re called. Body armor protects the torso but not the limbs. When an IED detonates, it can turn shattered bone into shrapnel, driving the body’s bone fragments deep into its own flesh, even as the blast dismembers limbs. But it’s not the injuries that linger in his memory as much as the youth of some of the casualties. “On Monday, a soldier was a virile 21-year-old man. On Tuesday, this . . .,” says Dr. Jacobowitz, gesturing to a photo of a gravely wounded soldier just a couple of years younger than his own son. “It tears your heart out.”

Dr. Jacobowitz speaks of one young Marine he says he’ll never forget. His vehicle was blown up by an IED, and his wounds included a badly burned face, a missing leg, and another leg held together by pins. But the warrior’s *Why me?* was not a plea of self-pity. It wasn’t *Why did I get wounded?* but rather *Why am I alive and not my buddy?*



On the morning after 9/11, Dr. Omar Bholat surveys the aftermath at Ground Zero.

The Doctor Is In—24/7 (continued from page 1)

was launched in 2004, she was the first and only physician of her kind at the Medical Center. Today, as the program’s director, Dr. Hochman supervises 27 other physicians at Tisch and NYU Langone’s Hospital for Joint Diseases (HJD). Fueled by mandated reductions in the number of hours per week that residents are allowed to work and by mounting pressure on hospitals to reduce costs and improve quality, hospital medicine is the fastest-growing medical specialty nationwide.

At NYU Langone, hospitalists treat some 60% of all inpatients at Tisch and HJD—for the most part, those whose personal physicians have an agreement with the Medical Center allowing it to care for their patients when hospitalized, excluding the areas of critical care, oncology, and hematology. The hospitalists’ caseload has grown

by 60% in the past two years as more than 120 physicians affiliated with NYU Langone have enlisted their services. These physicians find that entrusting their patients to hospitalists helps relieve their crowded schedules.

Hospitalists, who specialize in the care of acutely ill patients, see themselves as ideally suited to champion quality care. “Many people who come in for elective surgery have other health problems, like heart disease and diabetes, which can intensify under the stress of surgery,” notes Eduardo Iturrate, MD, instructor in medicine and co-director of the hospitalist program at HJD. “I provide another set of eyes, and I can intervene before problems get out of control.”

Indeed, because hospitalists are intimately familiar with the hospital, and staff its units 24/7, they

know how to navigate the institution, making it easier to follow up on tests, respond to nurses’ questions, and console family members. Most important, their insider status makes them well poised to orchestrate complex care and treatment involving multiple specialists and departments. As a result, they have helped the Medical Center reduce its overall length of stay and its readmission rates.

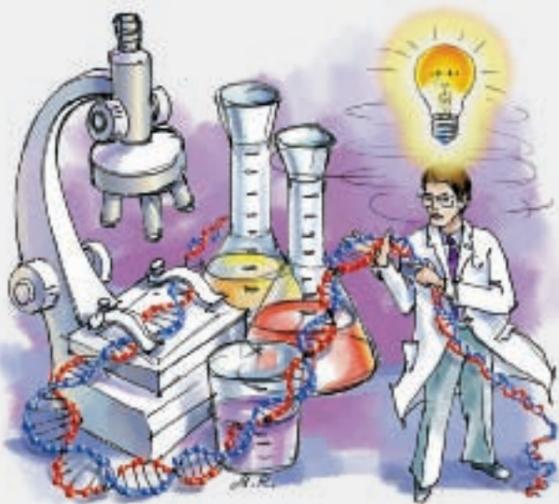
Before visiting a patient scheduled to have his esophagus dilated, Dr. Hochman is on the phone with the patient’s private physician, nurse practitioner, social worker, and a family member to make sure that everyone is on the same page. “That kind of interaction,” explains Dr. Hochman, “probably wouldn’t have happened without a hospitalist on duty.”

Taking Stock and Making Strides

On the Fifth Anniversary of Dean & CEO Robert I. Grossman's Investiture, NYU Langone Reflects on the Major Milestones of Its Journey to Become a World-Class, Patient-Centered, Integrated Academic Medical Center

On October 29, 2007, several months after becoming the 15th dean and CEO of NYU Langone Medical Center, Robert I. Grossman, MD, formerly chair of the Department of Radiology, explained his vision for the institution in his investiture speech. "We must build on our history of greatness to become a world-class academic medical center, competing successfully with the best of the best," he said. "We have all the ingredients to ascend to this rarefied status. We sit in the heart of the greatest city in the world. We are part of a remarkable university. Our excellent hospitals and School of Medicine have areas of extraordinary strength. There are giants among us who reinvent our legacy of excellence every day. We have genuine devotion to innovation and collaboration." In his first five years, Dean Grossman has generated a host of initiatives designed to raise NYU Langone ever higher in its quality, stature, and aspirations. Just a few key highlights of the last five years are presented here. Together, they form a vivid portrait of an institution with an ambitious agenda—and the momentum needed to achieve it.

Research



NIH Grants

NYU Langone receives more than \$259 million in grants from the National Institutes of Health in fiscal 2011, up from \$180 million in 2007.



CTSI Award

New York University and NYU School of Medicine receive a \$29.4 million, five-year Clinical and Translational Science Award from the National Institutes of Health in 2009 to establish a university-wide Clinical and Translational Science Institute (CTSI) in partnership with the New York City Health and Hospitals Corporation.

Largest Grant in NYU Langone's History

Judith Hochman, MD, the Harold Snyder Family Professor of Cardiology, director of the Cardiovascular Clinical Research Center, and co-director of the Clinical and Translational Science Institute, is awarded an \$84 million grant—the largest in the history of the Medical Center—by the National Institutes of Health in 2011.



Patents and Inventions

From 2007 to 2012, NYU Langone's total licensure income from more than 130 patents and 460 inventions totals approximately \$1.3 billion, first among the nation's universities.

Education

Curriculum 21

The class of 2013 becomes the first to participate in and benefit from NYU School of Medicine's Curriculum for the 21st Century, a spiral learning process that is based on patient-centered disease "pillars" and which intertwines basic science with direct patient care.



New York Simulation Center for Health Sciences

The New York Simulation Center for Health Sciences, the largest urban health-training center of its kind in the US, is established at Bellevue Hospital in 2011 through a partnership between NYU Langone and the City University of New York.



New Department of Population Health

NYU School of Medicine creates a new Department of Population Health in 2012 to provide a hub for research and training, bringing together investigators in epidemiology, biostatistics, health policy, prevention, and related disciplines.

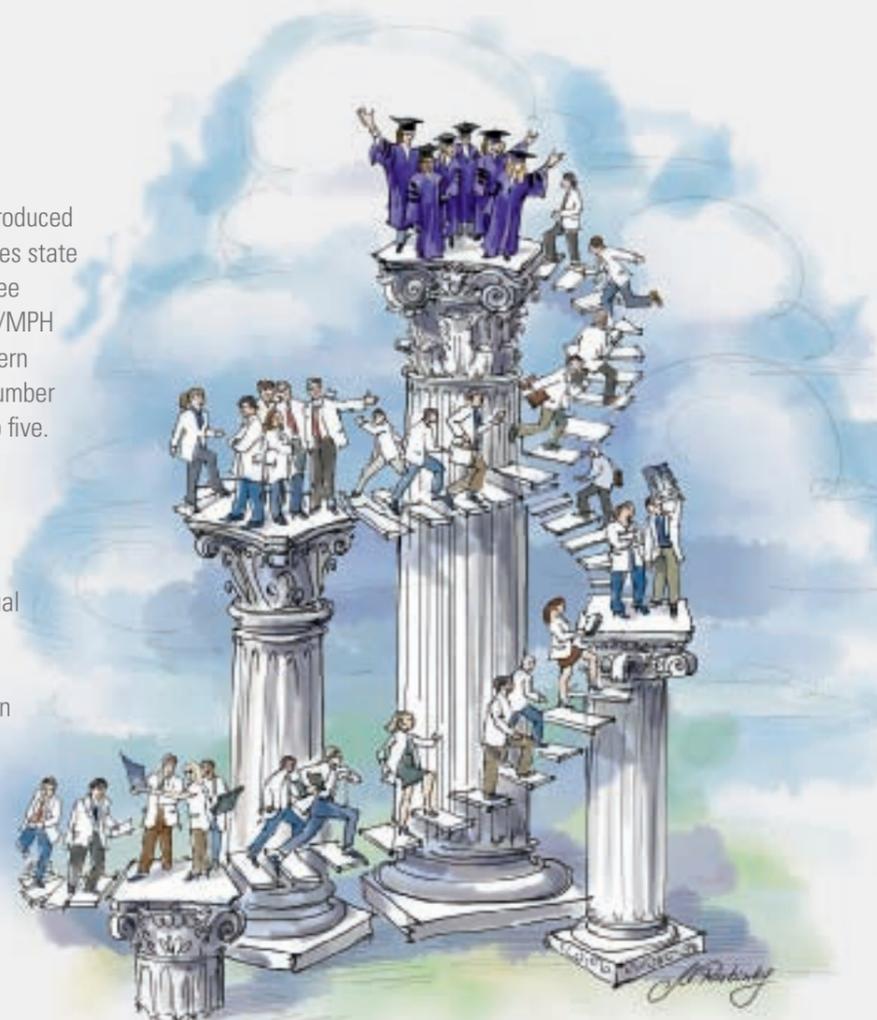
Dual-Degree Programs

Building on the MD/MA in bioethics introduced in 2010, NYU School of Medicine receives state approval in 2011 for two new dual-degree programs—a four-year accelerated MD/MPH and a five-year MD/MBA with NYU's Stern School of Business, bringing the total number of dual degrees offered by the School to five.



BioDigital Human

In gross anatomy, first-year students at NYU School of Medicine use a new visual tool known as the BioDigital Human—the result of a collaboration between BioDigital Systems, LLC, and the Division of Educational Informatics—to explore and dissect the body virtually.



Patient Care

NYU Langone Named a Top-10 Academic Medical Center

In 2010, the Medical Center is named a top-10 academic medical center by University HealthSystem Consortium, earning five stars (the highest rating) for overall performance and ranking number one for effectiveness and equity. In 2012, NYU Langone is one of only two hospitals in New York City to be awarded an "A" Hospital Safety ScoreSM by The Leapfrog Group, a national health quality and safety association.



NYU Langone Scores among Top 10% of Hospitals Nationwide

In 2011, whynotthebest.org, a website that tracks and compares the performance of more than 4,500 hospitals that provide data to the federal Centers for Medicare and Medicaid Services, gives NYU Langone an average Overall Recommended Care score of 98.5%, placing it among the top 10% of hospitals nationwide.



Gold Seal from The Joint Commission

In the first-ever simultaneous survey of all three hospitals that make up NYU Langone Medical Center (Tisch Hospital, the Rusk Institute of Rehabilitation Medicine, and the Hospital for Joint Diseases) as a single institution in 2010, The Joint Commission awards NYU Langone full accreditation and its Gold Seal.



Magnet Designation Re-earned

In 2009, Tisch Hospital and the Rusk Institute of Rehabilitation Medicine earn a unanimous vote for redesignation of their Magnet status, first conferred in 2005. A distinction for nursing excellence, Magnet status is earned by less than 6% of the nation's hospitals.



U.S. News & World Report Hails 15 Medical Specialties

In 2011, a record 15 medical specialties at NYU Langone are nationally ranked by *U.S. News & World Report*.



U.S. News & World Report Ranks Rusk Number One in New York State

In 2012, the Rusk Institute of Rehabilitation Medicine, the birthplace of comprehensive rehabilitation medicine, is ranked number one in New York State for the 23rd consecutive year by *U.S. News & World Report*.



Electronic Medical Record System (Epic)

NYU Langone becomes the first healthcare institution in the New York metropolitan area to implement an electronic medical record system on an enterprise-wide basis in 2010, rolling out Epic, a state-of-the-art patient information system.



Lean Management

Lean Management, a set of improvement strategies adopted from the corporate world, is implemented institution-wide in 2009 to enhance efficiency, financial sustainability, and patient care.



Ambulatory Care Network

Trinity Center, the first site in an expanding network of off-campus ambulatory care centers, opens in the heart of the Financial District in 2008 to serve the residential and corporate communities in downtown Manhattan.



Seven-Day-a-Week Hospital

To enhance patient-centered care, NYU Langone expands numerous clinical services as it moves in the direction of a seven-day-a-week hospital.



Center for Musculoskeletal Care

Building on its national renown in orthopaedics, rheumatology, and rehabilitation medicine, NYU Langone opens the Center for Musculoskeletal Care in 2012, the largest freestanding facility of its kind in the country.



First Major Institutional Advertising Campaign

In 2009, the Medical Center launches its first major institutional advertising campaign, "Any Given Moment," which focuses on some of the institution's major clinical and research strengths.



Doctor Radio

"Doctor Radio," a pioneering radio program powered by NYU Langone and broadcast 24/7, debuts on Sirius Satellite Radio (channel 81) in 2008.

Philanthropy

NYU Langone Raises \$1 Billion

NYU Langone announces in 2011 that in less than four years, it has raised an unprecedented \$1 billion in philanthropy.



Medical Center Renamed

In 2008, NYU Medical Center is renamed the NYU Elaine A. and Kenneth G. Langone Medical Center to honor its board chair and his wife for their \$200 million unrestricted gift.



Two Transformative Gifts

Two transformative gifts totaling more than a quarter of a billion dollars—a \$110 million gift from the Tisch family for the refurbishment of Tisch Hospital, and a \$150 million gift from Helen Kimmel, a Medical Center trustee and a life trustee of New York University, for the Helen L. and Martin S. Kimmel Pavilion for clinical care—contribute toward a record \$506 million raised in 2008, an amount believed to be the largest raised by any academic medical center in a single year.

Support for Student Scholarships and Housing

In 2010, Jan Vilcek, MD, PhD, professor of microbiology, recently appointed a trustee of the Medical Center, and his wife, Marica, donate \$21 million for student scholarships and housing, the latest in a series of extraordinarily generous gifts and commitments to the Medical Center totaling more than \$120 million.



New Neuroscience Institute

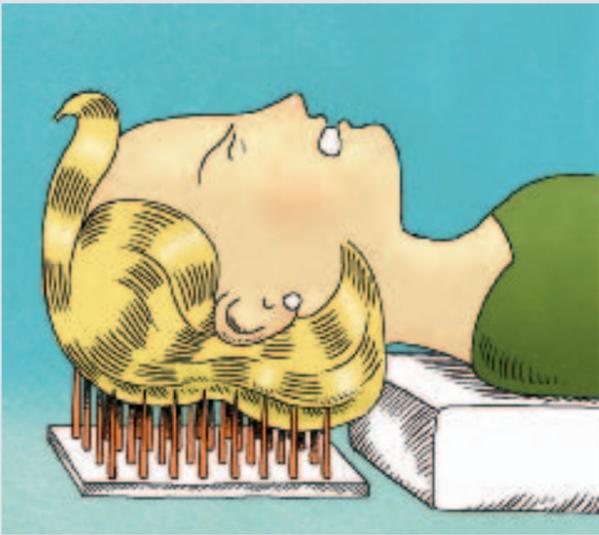
A \$100 million gift from the Druckenmiller Foundation in 2009 establishes a state-of-the-art neuroscience institute, whose chief benefactors and champions are Medical Center Trustee Fiona Druckenmiller and her husband, Stanley.



New Pediatric Center

Three generations of the Hassenfeld family, led by longtime Medical Center Trustee Sylvia Hassenfeld, donate \$50 million in 2011 as a leadership initiative to help create the Hassenfeld Pediatric Center at NYU Langone.





Escaping the Misery of Migraines

The assaults came without warning—headaches that stabbed at the right side of Elizabeth Castrataro-Capua’s face for days on end, leaving her depleted and debilitated. Like 28 million Americans, Castrataro-Capua, 48, an elementary school art teacher from Armonk, New York, had always been susceptible to migraines, yet over-the-counter painkillers usually made them manageable. But after she had a child, at age 40, “the pain became violent,” she says. Her doctors diagnosed her with hemi-crania continua, a condition even more severe than migraines. They prescribed everything in their arsenal, but nothing worked. Her performance at work suffered, and she became incapacitated so much of the time that she felt as if she was failing her son, Peter: “I tried to have a baby for years and finally got the gift of life, but I couldn’t even take care of him.”

Alon Mogilner, MD, PhD, director of the newly created Center for Neuromodulation in NYU Langone Medical Center’s Department of Neurosurgery, determined that Castrataro-Capua was an ideal candidate for occipital nerve stimulation (ONS), an adaptation of a technique used since the 1970s to alleviate intractable pain in the back, arms, and legs. ONS delivers a mild electrical pulse to the nerves affected by headaches via a tiny device implanted under the skin. Though scientists don’t know exactly how ONS works, they theorize that a nerve can allow only one kind of sensation at a time. ONS replaces the pain sensation with a pleasant vibration.

Dr. Mogilner reports that in his clinical practice, ONS alleviates migraines, cluster headaches, and similar conditions more than 80% of the time. Three randomized trials of ONS for migraine headache have been conducted with promising results, and a fourth multicenter trial will begin this fall. To date, the FDA has not approved ONS to treat headaches of any type, and the technique is still considered “off-label.” (Dr. Mogilner is a paid consultant for the device’s manufacturer.)

When Castrataro-Capua arrived for surgery, her head throbbed so badly she couldn’t even stand. On a scale of 1 to 10, she estimated her pain at “100.” In the operating room, Dr. Mogilner threaded two electrodes, thin wires the diameter of angel hair pasta, under her skin at the back of her skull and over the branch of a nerve on her right temple, attached them to an external battery, and activated the current. Castrataro-Capua awoke without headache pain. In its place, she felt a gentle buzz that reminded her of a massage chair. “I was so happy I was afraid to move,” she recalls. “I thought that if I moved the wires, my headache would return.” They didn’t. A week later, satisfied with the location of the leads, Dr. Mogilner implanted a generator (the size of a pacemaker) under the skin in her chest.

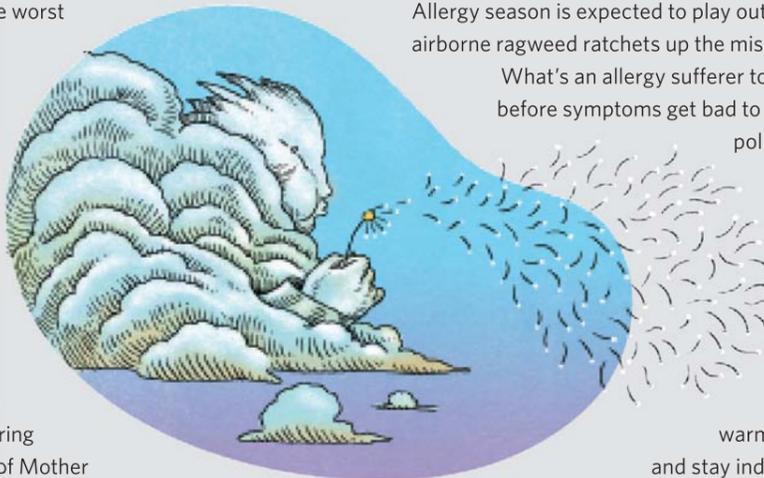
Castrataro-Capua still gets headaches occasionally, but she can adjust the stimulator using a remote until she finds relief. Instead of collapsing onto the couch with an icepack on her head after work, she now takes her son to the movies, on play dates, and to the zoo—activities that were impossible before. Finally, she says, she feels like a successful mom. “I’m thrilled to have my life back,” she rejoices.

Why Was the Groundhog Sneezing This Year?

Hordes of people beat paths to doctors’ offices this past flu season, seeking relief from runny noses, watery eyes, sneezing, and congestion. But for many, the reason had nothing to do with the flu or colds. What they had were allergies.

Health experts are calling 2012 one of the worst allergy years ever, as pollen made its debut as early as Groundhog Day (February 2). “It was the perfect storm,” notes Clifford Bassett, MD, clinical assistant professor of medicine. “Allergy season started two to three weeks earlier as the result of very mild winter temperatures, which caused trees and plants to begin pollinating. Because cities like New York are so heavily populated with male trees and plants, which people are generally allergic to, the suffering was compounded.” January was almost six degrees warmer than normal, causing many pollen-bearing plants and trees to begin blooming well ahead of Mother Nature’s clock. By late February, pollen counts had begun to soar to triple digits.

Meanwhile, atmospheric levels of carbon dioxide (CO₂), commonly associated with global warming, are on the rise, up from 1.6 parts per million (ppm) per year through the 1990s to 2.07 ppm per year over the past decade. CO₂ fuels plant growth and, hence, the production of pollens. Dramatic climate change is the



reason ragweed season, in some parts of the country, increased by as much as 27 days between 1995 and 2009, according to one recent study. If you’re one of the 60 million Americans who reach for tissues seasonally, the news gets even worse. Allergy season is expected to play out for an additional four weeks this fall, as airborne ragweed ratchets up the misery index.

What’s an allergy sufferer to do? Dr. Bassett advises consulting an allergist before symptoms get bad to determine through a painless skin test which pollens, molds, and indoor allergens you’re sensitive to. This evaluation will lead to an individualized approach to allergy medications. “Once you know what your allergy triggers are,” Dr. Bassett explains, “your doctor can begin a program of allergy shots, or immunotherapy, that can actually slow down or even alter the progression of the disease.”

On high pollen days—those that are warm, dry, and windy—keep the windows shut and stay indoors, says Dr. Bassett. Whether at home or in the car, set the air conditioner on “recirculate” to keep pollens out. He also recommends wearing a hat, using sunglasses, avoiding hair gels, showering and shampooing nightly, and avoiding foods that may worsen seasonal allergies—among them, many types of fresh fruits, vegetables, and nuts. His final suggestion: “Take a vacation by the beach, where pollen counts are typically lower.”

Looking for Stroke in All the Wrong Places

Jeffrey Berger, MD, assistant professor of medicine, and director of cardiovascular thrombosis in the Leon H. Charney Division of Cardiology at NYU Langone Medical Center, spends the majority of his time uncovering clues to risk factors that contribute to the development of heart attack and stroke. He is especially interested in finding markers that signal an increased risk of developing blood clots, which can block blood vessels to the brain and lead to ischemic stroke. This type of stroke afflicts some 800,000 Americans annually.

The balance of Dr. Berger’s time is spent working on clinical trials and seeing patients, often referred by other cardiologists who can’t pinpoint why they’ve experienced a heart attack or stroke. Conventional wisdom says that such patients will have high total cholesterol, high LDL (bad) cholesterol, low HDL (good) cholesterol, high blood pressure, diabetes, obesity, or other known risks. But what of those who have had what Dr. Berger labels “bad cardiovascular events from unrecognized sources,” yet don’t fit into any of these risk profiles? That puzzle inspired Dr. Berger’s latest study, which led to the finding that one of the strongest markers for ischemic stroke is high triglycerides—what the body manufactures from the carbohydrates we eat when they’re not immediately used for energy.

Dr. Berger turned to the Women’s Health Initiative (WHI), a vast (160,000 subjects), 15-year program, initiated by the National Institutes of Health, which collected health-related data on postmenopausal women. The women who participated in the study also contributed blood samples when they first enrolled. Dr. Berger and his co-investigators looked

at nearly 2,000 samples: half from women who had had strokes and half from those who had not. They compared about 10 different sizes of lipoprotein particles in blood samples from WHI participants. They also measured HDL, LDL, and total cholesterol concentration, expecting these lipid markers to be associated with incidence of stroke.

Dr. Berger found that elevated triglycerides doubled the risk for stroke among postmenopausal women. “This association remained even after adjustment for other clinical variables associated with stroke, such as increasing age, diabetes, obesity, and hypertension,” he explains.

What’s perhaps more surprising, says Dr. Berger, is that “after adjusting for the clinical variables, there was no significant association between ischemic stroke and total, LDL, and HDL cholesterol.” This goes against conventional wisdom, which says that the concentrations of total, LDL, and HDL cholesterol should be expected to stand out as risk factors. His study also revealed that other lipoproteins—intermediate-density lipoprotein (IDL) and very low density lipoprotein (VLDL)—are linked to somewhat higher incidences of stroke. Dr. Berger’s findings underscore the American Heart Association’s and American Stroke Association’s guidelines on stroke prevention, which list triglycerides as a risk factor.

“Understanding the risk of stroke is crucial,” says Dr. Berger, “both in identifying people at risk so you can target them appropriately, and in developing hypotheses that can be tested in future trials.” Dr. Berger would like future studies to look at substances that lower triglycerides, such as fish oil, fibrates, and to a certain extent, statins, to determine whether they can lower the incidence of stroke.





Dr. Dolores Malaspina

To Stress or Not to Stress

Q&A with Dr. Dolores Malaspina, the Anita Steckler and Joseph Steckler Professor of Psychiatry and Environmental Medicine

Is stress in the eye of the beholder?

The initial reaction of fear—like seeing the shape of a snake on the ground—is beyond our ability to control it consciously. But we can learn to modulate the stress response. Stress is an inevitable part of being alive, and not all stress is harmful. Healthy people seek out novelty and challenge, presenting the opportunity for stimulation or enrichment that is necessary for our physical and mental health. On the other hand, there are high costs—mentally and physically—from our response to stressors that are severe, threatening, or unremitting. This is particularly true when we can't mitigate a stress by taking action, as might be the case when a loved one is ill.

Which life events are considered most stressful?

A divorce or a breakup, bereavement, or the loss of a job are very stressful. But so are commuting to work, mounting debt, and studying for exams. Even desired experiences can cause significant stress, including a wedding or pregnancy, changing jobs, or having children. Stressors are ubiquitous, but we can learn to control our response to them.

When we're under stress, what physiological changes take place?

When we perceive a stress, we react like other mammals: with a fight-or-flight response, even

though neither of these is useful in most situations. With the perception of stress, a cascade of signals starts in the brain, triggering the release of cortisol, the stress hormone, from our adrenal glands. Involuntarily, we inhibit body processes that are not part of the stress response, like digestion and cellular repair, and can even block some high-level thinking that might have been useful in solving the problem. To optimize the fight-or-flight response, there's an increase in respiration, cardiac outflow, and the release of energy and inflammatory molecules into our bloodstream.

What have studies revealed about the role stress plays in physical and mental health?

Chronic activation of our stress systems can put us at risk for depression and anxiety. It's also a major factor for predicting the course and outcome of cardiovascular disease, obesity, bone demineralization, type 2 diabetes, and other chronic conditions.

Do we understand how stress affects the immune system?

Molecules from the immune system called cytokines can trigger a stress response. High amounts of cytokines can be toxic to brain cells. The cross talk between the immune and stress systems can suppress our immune function, leaving us vulnerable to disease.

What are some effective coping strategies?

It is the perception of a threat that triggers the stress response. The perception of danger is automatic, but the response can be tamped down consciously. People can learn to use their higher-level thinking to reframe circumstances so that they no longer seem as threatening. Learn relaxation techniques to turn off the stress response, and train yourself to not overreact. People who are very sensitive to stress or always feel stressed should seek professional help.

Do we understand why some people deal with stress better than others?

We know that early-life stress and even stress in the womb can increase sensitivity to later stress. There's a survival advantage to this mechanism in many species, but it's not well adapted to modern human life. Some people are sensitive to stress because they have a mood or anxiety condition or a medical problem, or because of a medication. Having good resources or a good social support system will improve how well you deal with stress.

Is there a link between stress and anxiety disorders?

Yes, it goes both ways.

Is there a personality type that is most prone to stress?

"Type A" people who are ambitious, time-conscious, and driven can experience greater stress. So can people who are characteristically negative.

What are the warning signs that stress is taking a toll on one's health?

An inability to relax is one. There should be times in your day when you feel centered and reflective, when you're not preoccupied by problems or life circumstances. Another red flag is a change in sleeping habits or appetite, or having a short fuse with loved ones or colleagues.

Is the human brain hard-wired to make mountains out of molehills?

I don't believe this is true. But sometimes we become too vigilant, waiting for the other shoe to drop. Then we pay the price even if the event never occurs.

Fourteen Floors of Good Fortune *(continued from page 1)*

In May, NYU Langone's Multiple Sclerosis Comprehensive Care Center was the first clinical program to move in, followed by Pre-Admission Testing and nonmusculoskeletal rehabilitation services provided by the Rusk Institute of Rehabilitation Medicine. Rusk has a substantial presence in the ACC: two-and-a-half floors for physical and occupational therapy, social work, speech language pathology, women's health rehabilitation, and other programs. To be phased in over the next year will be services for dermatology, endoscopy, nephrology, neurology, oncology, ophthalmology, otolaryngology, pain management, and vein treatment.

The ACC is the latest—and largest—addition to what some are calling the Medical Center's "ambulatory care corridor," which is taking shape on East 38th Street. Its neighbors include the recently opened Center for Musculoskeletal Care and the Outpatient Surgery Center, both one block

east at 333 and 339 East 38th Street, respectively. "For all intents and purposes, we're building an ambulatory care campus that affords the Medical Center an opportunity for growth that we're unable to accommodate on the main campus," explains Andrew Brotman, MD, vice dean for clinical affairs and strategy, and chief clinical officer. "The new spaces we're developing are usually multidisciplinary and focused on the total needs of patients."

"This building gave us a unique opportunity to create a dynamic, integrated clinical environment dedicated to ambulatory care," says Vicki Match Suna, senior vice president and vice dean for real estate development and facilities. "We've been able to take an obsolete telecommunications facility and transform it into a warm, inviting, patient-centered experience that unifies many different kinds of services under one roof."

The ACC's spacious lobby provides a gateway for the 1,400 patients expected to visit the facility

daily. Accommodations will include a full-service café, valet parking, and comfortable waiting areas with views of landscaped courtyards. The building was the first to take advantage of a regulation issued by the City of New York in 1965 that permits a through-block design, and can be accessed from both East 37th and 38th Streets. When the project is complete, both sides of the lobby will lead out into public spaces with new plantings, seating, canopies, and artwork.

Some visitors will need to go no higher than the mezzanine level, where hospital Pre-Admission Testing is now located, with 20 exam rooms, imaging equipment, registration stations, and separate waiting areas for adult and pediatric patients. Notes Martha Kent, RN, director of perioperative services, "This magnificent new space and the building that serves as its home is redefining what we mean by patient-centered care."

NEWS & VIEWS

Inside This Issue



Fourteen Floors of Good Fortune An evolving telecommunications company eager to sell unused space in its Midtown tower, filled with obsolete equipment. An expanding medical center in need of vast amounts of space for its relocation of clinical programs. A real estate deal that can best be described as a win-win. [page 1](#)



The Doctor Is In—24/7 Some say that Tisch's 28 hospitalists—physicians who care solely for inpatients—are perhaps a doctor's best friend and a patient's greatest ally. But they are also something more: practitioners of the fastest-growing medical specialty nationwide. [page 1](#)



Serving Those Who Serve On September 11, 2001, Dr. Glenn Jacobowitz and Dr. Omar Bholat found new meaning in their lives, and a new purpose for their medical training as surgeons. [page 3](#)



To Stress or Not to Stress Is stress in the eye of the beholder? Which life events are considered the most stressful? Is there a personality type that is most prone to stress? Dr. Dolores Malaspina, the Anita Steckler and Joseph Steckler Professor of Psychiatry and Environmental Medicine, tackles these and other stress-busting questions. [page 7](#)

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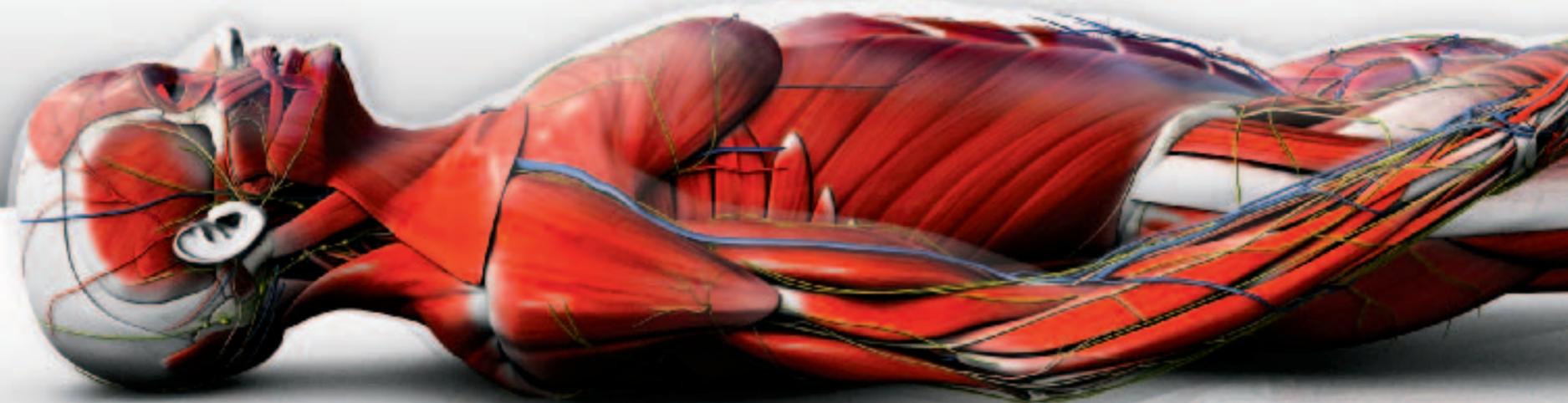
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John Qualter

A Living Landscape

New Teaching Tool Helps Students Unravel the Mysteries and Marvels of the Human Body

When Matt Bilbily ('15) dons 3-D glasses, it's not to revisit the sinking of the *Titanic*, but to unravel a far greater mystery: the human body. In his gross anatomy class, the first-year student at NYU School of Medicine is using a new visual tool known as the BioDigital Human to explore and dissect the body—virtually, that is. With a keyboard and mouse, Bilbily takes an Imax-like journey across the human landscape of brightly colored organs, muscles, and blood vessels, all projected in stereoscopic detail on the large screen before him.

"One of the biggest drawbacks with a cadaver is that it's difficult to see certain vessels and features," he notes. "With the BioDigital Human, you have the freedom to explore from any number of vantage points and not miss a vessel because it got lost in the dissection process."

While the BioDigital Human may never replace the human cadaver as a teaching tool, for a growing number of students, it's proving to be a more than credible stand-in. During a recent class, students in scrubs and surgical gloves toiled over embalmed cadavers on gurneys, examining and separating organs under the watchful eye of

physician-instructors, while in an adjoining room, the BioDigital Human offered them the opportunity to reprise what they had just learned.

"It's a living digital textbook," explains John Qualter, MSc, research assistant professor of educational informatics, who helped design and develop the teaching tool in partnership with the School's Division of Educational Informatics. "We wanted to improve healthcare and medical education, and realized that the best way to do it was to give people the unrestricted ability to navigate the human body." That means not only dissecting but also reassembling the body's major systems to see how they're integrated. Three-D animation enables users to simulate a wide variety of disease states.

The technology is viewable at www.biodigitalhuman.com, as part of what Marc Triola, MD, assistant professor of medicine and associate dean for educational informatics, calls a "new ecosystem of health learning." He elaborates: "The BioDigital Human is allowing us to open up the educational resources and expertise of NYU School of Medicine to an entire world of learners, including premed students, patients, and young people just getting interested in science."