



OUR COVID-19 EFFORTS

Read about NYU Langone Health's response to the challenges of the COVID-19 pandemic.
See insert.



NYU Langone Orthopedics

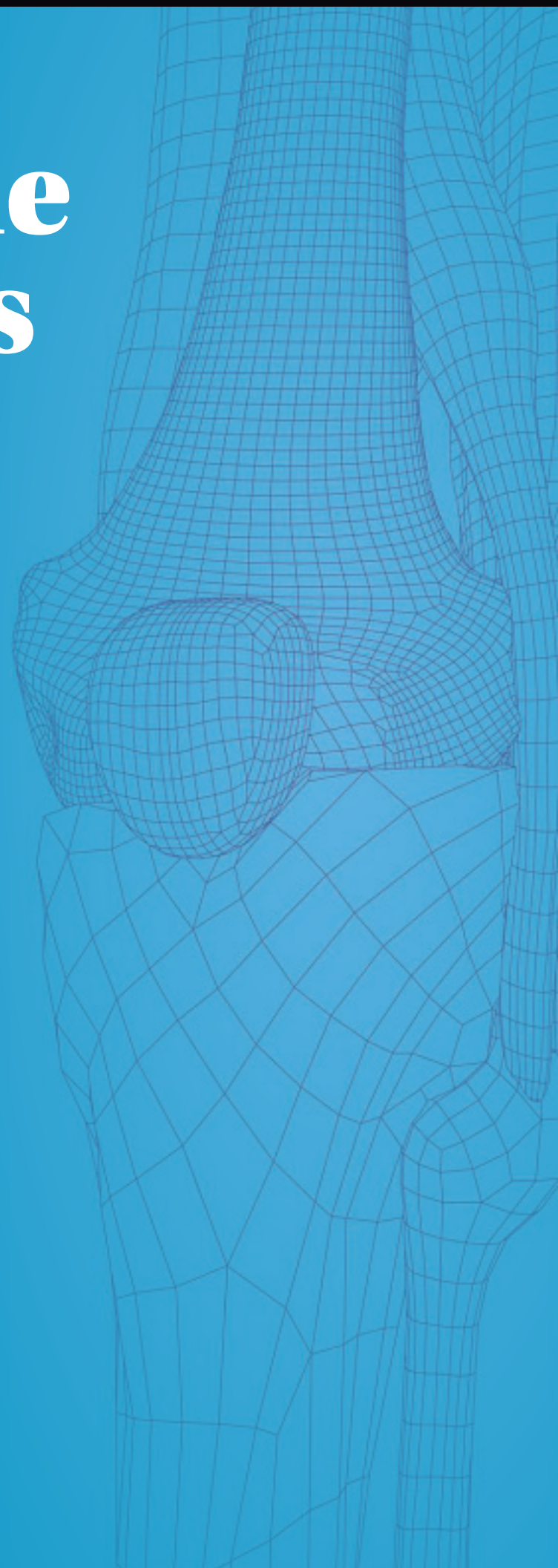
2020 HIGHLIGHTS

Innovation in Same-Day Discharge for Joint Replacement Fuels Quality Outcomes in Brooklyn
Team Approach Emphasizes Patient Selection and Careful Planning to Help Get Patients Home Faster

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Novel Fusion and Non-Fusion Approaches Improve Surgical Outcomes for Spine Patients
Specialists Apply Leading-Edge Robotic and Tethering Technologies to Deliver Better Long-Term Function

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JOSEPH D. ZUCKERMAN, MD

Walter A.L. Thompson Professor of Orthopedic Surgery
Chair, Department of Orthopedic Surgery
Surgeon-in-Chief, NYU Langone Orthopedic Hospital

**MESSAGE
FROM
THE CHAIR**



The unprecedented COVID-19 pandemic has challenged every one of us to rethink the delivery of quality care. In 2020, the required realignment—even the delay of elective surgeries—did not deter continued innovation in the Department of Orthopedic Surgery. In fact, our team collaborated to push the boundaries of quality care in ways equally unprecedented.

As the virus brought symptomatic patients to NYU Langone Health, our physicians, advanced practice professionals, residents, fellows, and staff mobilized quickly, pivoting in care delivery as NYU Langone Orthopedic Hospital dedicated floors to care for COVID-19 patients. Our years of effort to refine our telemedicine platform, meanwhile, proved invaluable as routine orthopedic care shifted to virtual delivery. When surgery could safely be performed, we continued our institutional emphasis on innovation, uncovering new and transformative approaches to treat complex orthopedic cases while extending the benefits of minimally invasive approaches and same-day joint replacements. Our continued expansion to new locations in Long Island and Staten Island meets patients where they are by conveniently delivering our top-ranked orthopedic care within the community.

While the final resolution of the pandemic remains unclear, our dedication to continually look beyond the status quo and deliver forward-thinking orthopedic care is a constant.



#4

IN U.S. NEWS &
WORLD REPORT

Over 200

ORTHOPEDIC
PHYSICIAN EXPERTS
ON FACULTY

**More than
28,000**

ORTHOPEDIC PROCEDURES
PERFORMED ANNUALLY



◀ Joshua C. Rozell, MD

Innovation in Same-Day Discharge for Joint Replacement Fuels Quality Outcomes in Brooklyn

As demand rises for hip and knee replacements in a more mobile population, the drive toward leading-edge surgical techniques that safely shorten patient recovery has gained momentum. At NYU Langone Hospital—Brooklyn, a team approach emphasizing patient selection and careful planning has maintained quality outcomes while mobilizing and getting patients home more quickly.

SETTING THE STAGE FOR SUCCESSFUL OUTCOMES

To bring the same-day joint replacement surgeries pioneered at our Manhattan facilities to patients in other communities, NYU Langone Hospital—Brooklyn appointed hip and knee specialist Joshua C. Rozell, MD, assistant professor in the Department of Orthopedic Surgery.

Dr. Rozell gives patients a detailed “playbook” with information on the procedure and how to prepare. “If the patient isn’t educated about rehabilitation, recovery, and potential postsurgical issues, they are more likely to return to the hospital after surgery,” he explains.

It is also important to ensure that the multi-disciplinary team is working in tandem—from

the nursing and operating room staff to the anesthesiologist, physical therapist, and surgeon—toward quality outcomes.

EARLY DISCHARGE AIDED BY FORWARD-THINKING TECHNIQUES

Dr. Rozell brings a range of surgical techniques to optimize knee and hip replacements for same-day discharge. In the knee, this involves a tourniquet-less, computer-navigated procedure that leads to better alignment, more natural movement, and reduced muscle dysfunction.

“Without a tourniquet, blood continues to flow through the musculature of the leg, the quadriceps may return to normal functionality faster, and we

tend to see fewer nerve-related problems,” says Dr. Rozell. A growing body of evidence supporting the approach points to an equal safety profile along with the benefits.

For most total hip arthroplasty procedures, Dr. Rozell performs an anterior approach using a standard operating table. The approach spares soft tissues, allows intraoperative imaging to confirm alignment and implant position, and permits a clinical assessment of leg lengths to ensure appropriate restoration of hip mechanics—nuances that some studies suggest can help patients return to activity more quickly.

STRATIFYING SAME-DAY DISCHARGE CANDIDATES

The factors supporting same-day discharge are not universally applicable to patients, explains Dr. Rozell, and selection is critical. “I try to get the *gestalt* of each patient—how healthy they are, how motivated they will be to mobilize after surgery, and what social supports they have in place,” he says.

Dr. Rozell is one of few surgeons in Brooklyn to provide same-day discharge for total hip and knee arthroplasty. In that community, patients may live alone or have obstacles such as multi-staircase buildings, or language barriers. Any doubt about a patient’s safety leads to an overnight stay or inpatient admission.

Postsurgical care and physical therapy begin before surgery itself; a clinical care coordinator discusses expectations and discharge plans with patients and arranges home therapy.

Extending the benefits of same-day discharge to more patients has led to an overall reduction in length of stay for orthopedic procedures at the hospital, while quality outcomes remain steady with fewer hospital-related complications in patients receiving total knee and hip arthroplasty.

“We’ve carved days, if not weeks, out of patients’ length of recovery by giving them a head start with the resources they need to recover at home,” concludes Dr. Rozell. “For those candidates whose condition and social factors support outpatient procedures, it’s a tool we want to use more and more, to balance maximum safety and efficiency with high-quality surgical outcomes.” ■



▲
Omri B. Ayalon, MD (Left),
Jacques H. Hacquebord, MD (Center)

Complex Case: Amputation and Reconstruction for Recovered COVID-19 Patient

When a patient recovering from COVID-19 experienced necrosis of his entire forearm associated with a virus-induced blood clot, an experienced team of experts at NYU Langone's Center for Amputation Reconstruction planned a two-stage surgery balancing amputation with optimization of functional outcome. Relying on purposeful collaboration aligning advanced surgical approaches and prosthesis technology, the team successfully resolved the patient's condition while preserving his independence and quality of life.

AN EXTREME CASE OF VIRUS-ASSOCIATED COAGULOPATHY

The 76-year-old patient was previously hospitalized for more than two months for severe COVID-19 infection and associated complications. While in critical condition in the intensive care unit (ICU), he developed a subclavian blood clot that obstructed blood flow to his left hand and forearm. At that time, the clinical team took a life-over-limb approach focused on his recovery from COVID-19 without further comorbidities. Once the patient was stable, he was referred for consultation with a team at the Center for Amputation Reconstruction, co-led by Omri B. Ayalon, MD, clinical assistant professor in the Department of Orthopedic Surgery, and Jacques H. Hacquebord, MD, assistant professor in the Department of Orthopedic Surgery and the Hansjörg Wyss Department of Plastic Surgery.

“This patient had an extreme case of the coagulopathy that emerges in a substantial number of patients with COVID-19,” notes Dr. Hacquebord. “His arm was mummified, and since the necrosis of the hand and distal forearm was evolving, we followed him closely over a period of weeks to allow the level to demarcate before recommending amputation.”

DELIBERATE PLANNING, RECONSTRUCTION TURN AMPUTATION TO TREATMENT

While amputation was long considered a last-resort failure of treatment when other options are exhausted, Dr. Hacquebord and Dr. Ayalon approach the technique with an eye toward reconstruction, maximizing functional anatomy while eliminating nonviable tissue. This patient’s engagement with the multidisciplinary team at the center enabled deliberate, function-sparing planning at each phase of treatment.

“Often, these procedures are performed urgently, which puts the team in a position of playing catch-up with reconstruction and functional restoration,” notes Dr. Ayalon. “Here, our early evaluation of the patient’s condition in the ICU, combined with the multidisciplinary expertise of our surgical team, prosthetist, occupational therapist, and mental health specialist, allowed us to plan thoughtfully, with everyone lending their individual expertise to one collective, targeted outcome.”

First, Dr. Hacquebord and Dr. Ayalon worked in tandem with the team prosthetist to determine the salvageable limb length they had to operate with, balancing surgical options with prostheses that carried certain length requirements. “We wanted to preserve the elbow, which would increase the patient’s function considerably,” adds Dr. Ayalon. “So the first stage was to plan a pedicled abdominal flap method to reach that extra length.”

With that approach in mind, the team secondarily sought to preserve the greatest possible function by applying a bone bridge for stability, identifying the correct nerve transfers to utilize in order to bypass nonfunctional nerves, and reinnervating muscles to reduce phantom limb sensation and accommodate future myoelectric prosthesis use. The complex plan

required two surgeries and extensive rehabilitation, but the patient was highly motivated with a good support system in place, notes Dr. Hacquebord.

“Patients’ lives are affected tremendously by having an amputation, and depression, anxiety, and post-traumatic stress can present a significant roadblock to recovery and rehabilitation,” he says. “We prioritize mental health in patients’ treatment plans because it’s one of the most overlooked factors — yet it’s just as important as their physical therapy and recovery.”

TWO-STAGE APPROACH EXPANDS PROSTHESIS OPTIONS

The first-stage surgery began with osteotomy of both the radius and ulna, with a free segment of ulna clamped between the bone shafts to provide stability for a future prosthesis. Screws were placed across cortices to provide bone fixation, and the bone was covered as completely as possible with dorsal musculature and healthy, viable skin.

Though much of the area’s tissue and nerves were assumed necrotic, the patient’s bone health supported an extension of the amputation by up to six inches using the pedicled abdominal flap technique. In the first stage, the flap was drawn, dissected, and raised off the fascia; then the patient’s arm was adducted to his side and the flap inset with sutures. The base of the flap was closed before inset to provide substantial coverage in anticipation of the second procedure three weeks later. At that time, the flap was divided, debulked, and inset on the extremity.

With the flap placed and the abdomen closed, targeted muscle reinnervation began with exposure and lysis of the median nerve, ulnar nerve, and musculocutaneous nerves. The nerves were found to be more necrotic than expected, prompting the surgical team to adjust the surgical plan intraoperatively and focus more proximally in the brachium as opposed to the forearm to preserve

the patient’s elbow flexion and extension strength. Nerve transection was performed across the branches of the biceps, and nerve coaptations were completed and observed to be consistent with the prior transfers. The areas were sealed, and the patient was moved to recovery.

COORDINATED APPROACHES YIELD SUCCESSFUL OUTCOME BEYOND SURGERY

The patient’s rehabilitation is ongoing, and he has experienced steady improvement of prior nerve pain and phantom limb sensation, maintaining some function with the remaining extremity alone. He has been fit for a prosthesis, and following further healing he will work with the center’s prosthetic experts to fine-tune its myoelectric signals for optimal function as he learns to use it. He works with the center’s dedicated hand therapist, who applies advanced, amputee-focused approaches to help him strengthen his remaining arm and its function.

“Our multidisciplinary interventions mean the difference between a longer or shorter extremity, a greater- or lesser-functioning prosthetic, and a higher- or lower-quality of life for our patients,” notes Dr. Ayalon. “While each of these surgical approaches and techniques may be available individually, we offer a truly unified approach with every possible combination of optimal treatments tailored for the benefit of these often overlooked patients.” ■

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Here, our early evaluation of the patient’s condition in the ICU, combined with the multidisciplinary expertise of our surgical team, prosthetist, occupational therapist, and mental health specialist, allowed us to plan thoughtfully, with everyone lending their individual expertise to one collective, targeted outcome.”

—Omri B. Ayalon, MD

Collaboration, Flexibility Enable Innovation as Orthopedic Surgeons Support COVID-19 Response

With an emphasis on continued provision of quality care amid shifting patient management priorities, the Department of Orthopedic Surgery played a pivotal role in NYU Langone's response to COVID-19. As faculty, residents, and fellows redeployed to support COVID-19 patient care, the use of telemedicine enabled continuity of quality orthopedic care.

AT THE COVID-19 EPICENTER, NECESSARY SHIFTS IN PATIENT MANAGEMENT

The discontinuation of elective surgeries by government order coincided with a sharp rise in COVID-19 cases presenting at NYU Langone's hospitals. The evolving situation placed unprecedented pressure on the health system as demand for intensive care unit beds and acute COVID-19 care increased rapidly.

In response, clinicians in the Department of Orthopedic Surgery redeployed to COVID-19 care, and NYU Langone Orthopedic Hospital was transformed into a staging site for patients. The department mobilized quickly, with 86 faculty

and 80 residents and fellows delivering care in COVID-19 medical units across NYU Langone Health hospitals. Orthopedic surgeons worked side by side with internal medicine colleagues, and participated in "proning teams" to improve respiratory function by turning intubated patients. Another 70 faculty members in the Department of Orthopedic Surgery deployed to noncontact activities, including serving as liaisons between patients and their families who were unable to visit because of the crisis.

"The fluidity of the situation required us to rethink the standard ways of delivering care, with collaboration fueling ready innovation," says Joseph D. Zuckerman, MD, the Walter A.L. Thompson Professor of Orthopedic Surgery and chair of the department.

While four of NYU Langone Orthopedic Hospital's floors were dedicated to clinical care for patients recovering from COVID-19, a fifth floor was devoted to rehabilitation care for stabilized patients.

"Hospitalized patients become deconditioned, so they usually need some kind of therapy before they can return home or be transferred to a long-term care facility," explains David A. Dibner, MPH, senior vice president, NYU Langone Orthopedic Hospital, Musculoskeletal, and Rusk Rehabilitation.

VIDEO DOCTOR VISITS MAINTAIN CONTINUITY OF ORTHOPEDIC CARE

To continue orthopedic care amid shelter-in-place orders, the department turned to video doctor visits. The health system was poised to respond to sudden demand for video visits, having fine-tuned its platform over the past several years, notes Kirk A. Campbell, MD, assistant professor of orthopedic surgery. "We'd already troubleshooted potential issues," he says.

COVID-19 resulted in a rapid growth of the department's video visit program. In February 2020, 20 video visits were performed; by April the monthly number had increased to 4,000. Video visits extended across the care continuum from intakes to postsurgical physical therapy, yielding ongoing personalized care and progress for patients eager to return to their daily activities.

Dr. Campbell has successfully hosted video visits for patients ages 18 to 80 across clinical conditions. Pre-pandemic, he led a study randomizing postoperative patients into in-office and video visit groups; the two groups scored the same on the Hospital Consumer Assessment of Healthcare Providers and Systems, but the video visitors saved a significant amount of time.

Although an in-person emphasis is certain to return after the pandemic, the team believes that video visits will continue to play a significant role in tandem to facilitate care where and when it's needed.

"Throughout the pandemic, patients have been able to get high-quality care at their fingertips," says Dr. Campbell. "I think patients will demand continued access to telemedicine." ■



NYU Langone Orthopedic Hospital discharges 425th patient to recover from COVID-19.



◀ Themistocles Protopsaltis, MD
PHOTO: JULIANA THOMAS

Novel Fusion and Non-Fusion Approaches Improve Surgical Outcomes for Spine Center Patients

With innovative alternatives to traditional spinal fusion techniques, specialists in the Department of Orthopedic Surgery are improving outcomes for ortho-spine patients, applying leading-edge robotic and non-fusion tethering technologies to deliver better long-term function—faster.

SINGLE-POSITION APPROACH REDUCES LENGTH OF STAY, OPTIMIZES HEALING

A change in patients' operative position is enabling surgeons to more effectively reach treatment targets during spinal fusions for conditions such as spinal stenosis and spondylolisthesis. The new technique, single-position anterior-posterior lumbar fusion surgery (SPLS), allows surgeons to complete the

operation with the patient lying on one side—facilitating both more efficient short-term healing and better long-term function. “With the single-position approach, we can achieve better height restoration, especially for slipped disks where the vertebrae shift out of position,” explains Themistocles Protopsaltis, MD, associate professor in the Departments of Orthopedic Surgery and Neurosurgery, chief of the Division of Spine Surgery, and co-director of the Spine Center at NYU Langone. “It gives us more powerful

anatomical control to restore disks to their normal alignment—which is more likely to heal and eliminate problems patients can experience later due to segment degeneration.”

In the single-position approach, larger implant cages can be placed in a more optimal location, along the weight-bearing cortical bone, to provide greater structural support. As the traditional cages placed posteriorly sit in the softer part of the vertebra where they can settle, this placement is more likely to sustain functional improvement, especially in patients with poor bone quality.

The newer approach often involves multidisciplinary collaboration, with a dedicated vascular surgeon first performing the anterior approach through the lower abdomen or through a lateral incision, parting the hip flexor muscles and reaching the treatment target. Then the spinal surgeon completes the disk removal and vertebral column reconstruction.

ROBOT ASSISTANCE ENABLES FURTHER PRECISION

In tandem with SPLS, Dr. Protopsaltis and colleague Aaron J. Buckland, MD, associate professor in the Department of Orthopedic Surgery, are applying robot assistance to more precisely navigate spinal anatomy and place pedicle screws to complete the fusion. Placement is planned in three dimensions along the challenging spinal anatomy, the robot merging with preoperative CT imaging to achieve high-precision placement. The robot-assisted technique provides closer targeting, reducing the risk of complications such as nerve pain or weakness. It also eliminates the previous need for more extensive intraoperative fluoroscopy to guide placement of the screws, reducing overall radiation exposure to both the patient and the surgical team.

Even accounting for time to refine the robot application, the single-position approach has demonstrated reduced in-surgery time and complications, and faster patient recovery.

“This practice-changing technique is not only just as safe and effective as the alternatives, but also a less invasive approach that has distinct benefits over and above the traditional method, including improved operating room efficiency, reduced length of stay, and reduction in postoperative ileus,” says Dr. Buckland.

NEW NON-FUSION OPTION SUSTAINS FUNCTION FOR ADOLESCENTS WITH SCOLIOSIS

Separately, a vertebral body tethering (VBT) technique pioneered by spine specialists is enhancing outcomes in idiopathic adolescent scoliosis by circumventing fusion entirely. The alternative method, led by Juan C. Rodriguez-Olaverri, MD, PhD, clinical associate professor in the Department of Orthopedic Surgery and director of early-onset scoliosis, involves approaching the spine anterior through the thoracic cavity, sparing the muscles and joining the vertebrae with a U.S. Food and Drug Administration (FDA)-approved flexible polymer cord.

The new technique involves a process called growth modulation. It corrects curvature by partially restraining one side of the spine, guiding future growth, and allowing the spine to continue straightening. During the procedure, titanium screws are placed on the side of the spine that curves outward and secured with a flexible cord, or tether, along the other side. When the cord is pulled taut, it compresses the adjacent screws to help straighten the spine. NYU Langone is one of only a few centers in the world using this technique, and the first to regularly use intra-operative CT imaging navigation for screw placement to enhance safety and efficacy.

“With VBT, the spine can continue to move and bend, allowing greater comfort and freedom of movement, maintaining the quality of life these patients had before surgery,” notes Dr. Rodriguez-Olaverri. “And unlike traditional spine fusion, it leaves future treatment options on the table, if needed.”

Single-Position Approach Delivers Measurable Benefits to Patients

In a retrospective review of 90-day outcomes of 397 patients receiving spinal fusion between May 2012 and June 2019, Dr. Buckland and Dr. Protopsaltis found reduced operating times, less blood loss, and a 2-day reduction in length of stay among the 244 patients who received SPLS.

The measurably shortened surgery was also associated with lower rates of postoperative intestinal blockage, or ileus—presumably due to reduction in anesthesia time, less-invasive abdominal incisions, reduced need for pain medication, more rapid mobilization, and avoidance of the prone position for patients. The SPLS approach may reduce other complications as well, such as deep surgical site infection, pressure areas, peripheral nerve injuries, and difficulties in airway access. The research was recently published by *The Spine Journal*.

“These patients tend to feel better, faster, which means better mobility and higher function, sooner,” says Dr. Protopsaltis. “Applying this technique as one of a handful of centers nationwide exemplifies our mission to bring cutting-edge techniques to patients while improving clinical outcomes.”

Because it leverages spinal growth, the VBT method—also known as anterior scoliosis correction (ASC)—is well suited to younger patients who are still growing. Many of the patients who have the procedure are dancers and gymnasts who rely on movement during peak adolescent years—for whom fusion could be career ending. As more data support the safety and effectiveness of the VBT approach, it offers a movement-sparing alternative for these patients.

With the functional benefits of this less invasive approach, postoperative patients experience freedom of movement, with a return to previous activities typically possible at six weeks post-surgery. All patients can walk and climb stairs

before discharge from the hospital. The VBT alternative also offers visual improvements to the spine and leaves a smaller scar—a positive outcome in a patient cohort with documented psychosocial impacts from the condition.

Dr. Rodriguez-Olaverri—himself diagnosed with scoliosis during his adolescence—has been promoting the use of a second cord, to minimize the risk of cord breakage and the need for a repeat procedure without the loss of flexibility. “With the support of a multidisciplinary care team, we are helping to treat more and more of these patients without compromising their quality of life,” he concludes. ■



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—Juan C. Rodriguez-Olaverri, MD, PhD



John G. Kennedy, MD

Nano-Instrumentation Achieves Superior Foot and Ankle Outcomes—Outside the Operating Room

A novel, in-office visualization approach is transforming outcomes by combining enhanced diagnostic capabilities with immediate, minimally invasive treatment for foot and ankle conditions.

NYU Langone specialists—who pioneered the system's use and have now performed it in the most cases worldwide—are working to extend the frontier of its applications throughout the intricate foot and ankle anatomy.

WITH REAL-TIME INSIGHTS, ENHANCED SURGICAL DECISION-MAKING

The nano-instrumentation technique applies a leading-edge visualization system combining imaging sensors, LED light, and image management to perform minimally invasive arthroscopy and guide injections in tight joint spaces that have previously been difficult to visualize. The needle-sized, 1.9-millimeter chip-on-the-tip NanoScope™ system enables diagnosis of arthritis and cartilage injuries as well as arthroscopic treatments of the foot and ankle, with local anesthesia in the physician's office.

Pioneered at NYU Langone by John G. Kennedy, MD, chief of the Division of Foot and Ankle Surgery and professor in the Department of Orthopedic Surgery, the nano-instrumentation approach was first used to remove a patient's bone spurs and scar tissue from a prior cartilage restoration surgery. Its benefits—the concurrent evaluation of the surgical area and immediate, targeted treatment—were apparent to the patient, who walked out of the office within 15 minutes.

“Suddenly we have the ability, outside of the operating room, to see inside joints, tendon sheaths—anywhere within the body—with clarity equivalent to or better than standard arthroscopy,” notes Dr. Kennedy. Awake patients become real-time participants in their procedure and treatment. “Patients’ understanding of their pathology can predict outcomes, and now I can show my patients what is happening—problem and solution—in real time,” adds Dr. Kennedy. “It’s the most interactive patients can get in their healthcare and recovery.”

Although Dr. Kennedy has used the technique in patients of all ages, he notes that it’s most effective in mild to moderate pathologies in a younger patient population, and those patients are selected carefully. “This doesn’t displace sophisticated imaging or replace the need for larger surgeries for treatments, like implants, that can’t fit in a 2-millimeter portal,” Dr. Kennedy notes. “But I think we are heading toward a time when visiting an orthopedic surgeon will be more like visiting your dentist—you’ll go in for a small procedure and expect to leave on the same day.”

“

Patients’ understanding of their pathology can predict outcomes, and now I can show my patients what is happening—problem and solution—in real time. It’s the most interactive patients can get in their healthcare and recovery.”

—John G. Kennedy, MD

FASTER MOBILITY TIED TO SHORTER RECOVERY

The real-time view improves visualization and understanding for both patient and physician. A patient may not comprehend why an injury causes pain during exercise, but seeing the scars and bone spurs on the ankle joint elucidates the problem. At the same time, the nano-instrumentation provides diagnostic specificity superior to that of MRI, enabling the surgeon to treat the problem immediately.

“One patient had had several MRIs with different providers, and no one could identify the source of her pain at the top of her ankle joint,” says Dr. Kennedy. “As soon as we put the camera in, we saw a loose piece of bone floating around; we took it out, and she was instantly better.”

The detailed look inside the joints has also enabled Dr. Kennedy and team to reach—and treat—smaller areas of the anatomy. Conditions such as arthritis in the first metatarsophalangeal joint, for example, have become treatable, rather than career limiting, for athletes.

For the broader patient population, the nano-instrumentation approach has altered the course of recovery by nearly eliminating the immobilization that accompanies open surgeries due to soft tissue trauma around the target pathology. The new technique focuses recovery on the primary injury and enables immediate mobilization—critical in cartilage injuries that heal through motion.

The difference is evident in a registry of patient-reported outcome scores Dr. Kennedy created to measure overall patient satisfaction, based on factors such as mobilization and pain. In an early retrospective cohort analysis of 31 patients treated with nano-instrumentation for anteromedial impingement, known commonly as footballer’s ankle, patients demonstrated significant pain reduction and a low complication rate. Additionally, the approach was associated with excellent patient-reported outcomes and high rates of return to work and sport, with patients indicating that their involvement in the awake procedure helped them better understand their injury and recover more quickly.

REACHING BEYOND THE SURGICAL STATUS QUO

Dr. Kennedy and his team continue to push the boundaries of the procedure’s application to bring its benefits to more patients, and are cataloging the wide range of pathologies that may benefit, from tendon debridement to biologic augmentation of joints. The team recently achieved a plantar-plate repair with nano-instrumentation in the second toe, the world’s first recorded procedure in that area.

The technique is particularly promising in cartilage injuries, which commonly occur following minor injuries such as ankle sprains but may not present symptoms until arthritis establishes years later. Such osteochondral injuries can now be addressed in-office, where the nano-instrumentation identifies chondral defect and the patient is treated with platelet-rich plasma, significantly simplifying surgery and recovery time.

For athletes and dancers, the approach can mean the difference between returning to their full performance—or not. “Previously, we’d ask patients why they never got back to their previous levels, and they’d tell us they were overly afraid of reinjury,” Dr. Kennedy notes. “Now they can see for themselves that their injury is resolved and the joint is fine.”

The pioneering application of the technique is an example of the drive toward more sophisticated diagnostics and minimally invasive approaches to improve recovery with fewer surgical complications across orthopedic conditions, adds Dr. Kennedy. “Here, striving to be better, by doing things differently from how they were done last year or in prior years, is not only encouraged—it’s an institutional imperative,” he says. “Thanks to that culture, we’re now collaborating with surgeons around the world to help advance this approach.” ■

Disclosure: John G. Kennedy, MD, is a paid educational consultant to Arthrex, the company that produces the NanoScope™; he receives no financial benefit from the company’s products.

Selected Publications

NYU Langone researchers have led many efforts to better understand the impact of COVID-19 across nearly every medical specialty, with 617 publications in 2020. The Department of Orthopedic Surgery contributed to this research with publications that included:

Egol KA, Konda SR, Bird ML, Dedhia N, Landes EK, Ranson RA, Solasz SJ, Aggarwal VK, Bosco JA, Furgiuele DL, Ganta A, Gould J, Lyon TR, McLaurin TM, Tejwani NC, Zuckerman JD, Leucht P. Increased mortality and major complications in hip fracture care during the COVID-19 pandemic: A New York City perspective. *Journal of Orthopaedic Trauma*. August 2020; 34(8): 395-402.

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Konda SR, Ranson RA, Solasz SJ, Dedhia N, Lott A, Bird ML, Landes EK, Aggarwal VK, Bosco JA, Furgiuele DL, Gould J, Lyon TR, McLaurin TM, Tejwani NC, Zuckerman JD, Leucht P, Ganta A, Egol KA. Modification of a validated risk stratification tool to characterize geriatric hip fracture outcomes and optimize care in a post-COVID-19 world. *Journal of Orthopaedic Trauma*. September 2020; 34(9): e317-24.

Service BC, Collins AP, Crespo A, Couto P, Gupta S, Avilucea F, Kupiszewski S, Langford J, Lewellyn B, Petrie J, Zumsteg JW, Zeini IM, Osbahr DC, Haidukewych GJ, Romeo AA. Medically necessary orthopaedic surgery during the COVID-19 pandemic: Safe surgical practices and a classification to guide treatment. *Journal of Bone & Joint Surgery*. July 15, 2020; 102(14): e76.

NYU LANGONE ORTHOPEDICS

Our expanding footprint now includes NYU Langone Hospital—Brooklyn and NYU Langone Hospital—Long Island, plus offices throughout New York City's five boroughs, Westchester County, and New Jersey.



ABOUT NYU LANGONE HEALTH

Leader in Quality

NYU Langone's emphasis on continuous improvement inspires teams to continually raise the bar on quality and safety across our growing network in Manhattan, Brooklyn, Queens, Long Island, Staten Island, and Florida. NYU Langone's Tisch Hospital, Kimmel Pavilion, NYU Langone Hospital—Brooklyn, and NYU Langone Hospital—Long Island were awarded an "A" as well as a Top Hospital award as part of the fall 2020 Leapfrog Hospital Safety Grades. NYU Langone Hospitals achieved Five Star ratings on CMS Hospital Compare effective October 2019 and is the only major academic medical center in the New York metropolitan region to attain a Five-Star Quality rating.



#9

in the Nation

Ranked ninth by *U.S. News & World Report* for Best Hospitals; and ranked fourth for Best Medical Schools (Research).



#4

in the Nation



Transforming Medical Education

As COVID-19 has added new urgency to nationwide physician shortages, debt burden, and lack of diversity, we remain committed to our accelerated pathways to the MD degree and full-tuition scholarships regardless of need or merit at the recently renamed NYU Grossman School of Medicine and the new primary-care focused NYU Long Island School of Medicine.

For more information about our physicians, services, and locations, visit nyulangone.org

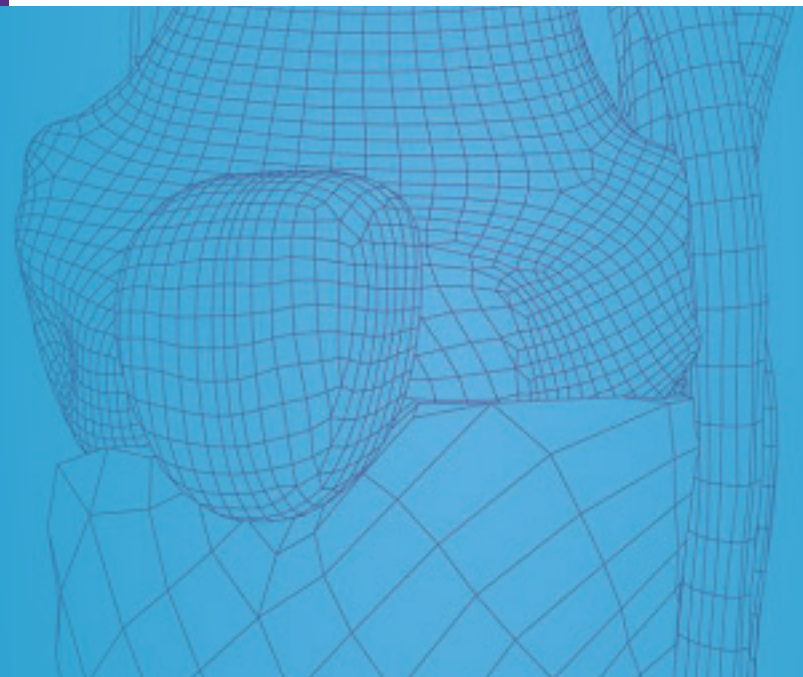
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NYU Langone Orthopedics

2020 HIGHLIGHTS



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