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MEDICAL EDUCATION**

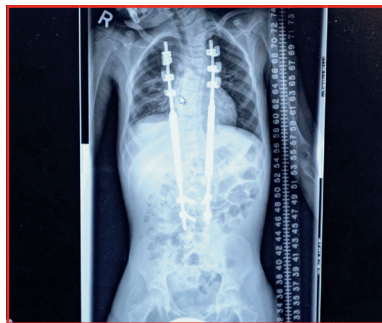
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## Magnetic Technology Offers Alternative Treatment for Early-Onset Scoliosis

A six-year-old boy diagnosed with early-onset scoliosis became the first patient in the New York area to receive a novel treatment using magnetic technology to correct this condition and avoid the need for repetitive spine-lengthening surgeries. An alternative to traditional growing rods, which require eight to 10 repeated lengthening surgeries during a child's growing years, the MAGEC® device allows surgeons to straighten and correct the spine gradually and noninvasively.

According to **Michael G. Vitale, MD, MPH**, Chief of Pediatric Spine and Scoliosis Surgery at NewYork-Presbyterian/Morgan Stanley Children's Hospital, the MAGEC [MAGnetic Expansion Control] device uses external magnets to control



*MAGEC correction system growing rods*

a rod implanted in the spine. "This approach is for children diagnosed with progressive early-onset scoliosis who have not benefited from nonsurgical treatments," says Dr. Vitale. "Early-onset scoliosis is not your average scoliosis. It is characterized by spinal curves that exceed 40 degrees, and can diminish the growth of the chest and lungs and

cause significant respiratory problems. If the curve progresses, this form of scoliosis can even affect life expectancy."

Early-onset scoliosis represents about 10 percent of pediatric scoliosis cases. The MAGEC correction system involves the surgical placement of growing rods in the child's spine, which can be adjusted

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## Carroll Laboratories Usher in New Era in Musculoskeletal Research

The new Dr. Robert E. Carroll and Jane Chace Carroll Laboratories for Orthopedic Surgery at NewYork-Presbyterian/Columbia, which debuted on November 5, 2014, will significantly augment the research efforts in bone mechanics, bone biology, tissue regeneration, and bone disease processes. The 8,000-square-foot facility – realized through the support of Mrs. Jane Chace Carroll – provides a solid foundation for cultivating a multidisciplinary musculoskeletal research center. More than 50 principal investigators with some 60 National Institutes of Health awards are conducting musculoskeletal system-related research spanning basic, translational, and clinical aspects at NewYork-Presbyterian/Columbia.

"With the opening of the Carroll Laboratories, we are fulfilling the wish of Bob Carroll to have our department take a leading role in both clinical

orthopedics as well as basic science research," says **William N. Levine, MD**, Orthopedic Surgeon-in-Chief, NewYork-Presbyterian/Columbia. "Mrs. Carroll's generous gift not only funded the creation of the Carroll Laboratories, but it also supports an endowed professorship and the recruitment of additional scientists. These new laboratories provide a facility in which both clinician-scientists and basic scientists can collaborate closely to pursue translational investigations that will only advance our orthopedic research efforts."

Dr. Robert Ernst Carroll was a visionary orthopedic surgeon, who in his 40 years as a gifted hand surgeon, outstanding teacher, and mentor at NewYork-Presbyterian/Columbia established the world's first hand service in a civilian hospital in 1949 and created the nation's first full-year hand

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## Magnetic Technology Offers Alternative Treatment for Early-Onset Scoliosis (continued from page 1)

every few months afterward using a remote-controlled device applied to the outside of the child's back during a routine outpatient visit. Dr. Vitale expects this advance to improve outcomes in children with severe spinal deformities.



*Dr. Michael Vitale and his colleagues implanted the magnetically controlled spinal rods into a six-year-old boy who had developed a 75-degree curve from early-onset scoliosis.*

"This new approach is designed to obviate the need for repeated trips to the operating room, as well as eliminate complications from infections and psychosocial effects of multiple surgeries," says Dr. Vitale. Conventional growing rod surgery requires children to come back for an additional operation every six months throughout childhood in order for surgeons to lengthen the rods. Repeated surgeries necessitate general anesthesia each time and increase the risk of infection because the same incision site is re-opened.

The MAGEC system is composed of an implantable rod and an External Remote Controller (ERC). Candidates for the MAGEC device undergo an initial surgery to implant an adjustable magnetized growing rod. Once the rod is implanted, it can be

lengthened externally with the hand-held ERC, which eventually distracts the spine. The rod-lengthening process typically takes about 15 minutes and is performed on patients every three to six months, up until age 10.

Dr. Vitale's first patient received the implantable rod in April 2014 and returned in three months to initiate the lengthening process. During the procedure, Dr. Vitale glided the MAGEC device over the child's back so it would sync with the rod to distract it 5 millimeters. Periodic distraction of the rod is performed to lengthen the spine and to provide adequate bracing during growth. Routine X-ray or ultrasound is used to confirm the position and amount of distraction. The frequency of distraction sessions is customized to the needs of the patient.

"The ultimate goal is to get the child close to the end of growth with a spinal length more or less the same as normal," says Dr. Vitale. "This allows normal lung growth and avoidance of the problems that can occur if the curve progresses."

The MAGEC device has already been used in 24 countries to treat more than 750 children. For the past five years, Dr. Vitale has advocated the U.S. Federal Drug Administration's approval of the device. In February 2014 the MAGEC system, manufactured by Ellipse Technologies, Inc., received clearance by the FDA for use in young patients with severe spinal deformities associated with, or at risk of, thoracic insufficiency syndrome.

### Reference Article

Williams BA, Matsumoto H, McCalla DJ, Akbarnia BA, Blakemore LC, Betz RR, Flynn JM, Johnston CE, McCarthy RE, Royce DP Jr, Skaggs DL, Smith JT, Snyder BD, Sponseller PD, Sturm PF, Thompson GH, Yazici M, Vitale MG. Development and initial validation of the Classification of Early-Onset Scoliosis (C-EOS). *The Journal of Bone & Joint Surgery (Am.)*. 2014 Aug 20;96(16):1359-67.

### For More Information

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## Welcome to New Faculty Members



*Dr. T. Sean Lynch*

T. Sean Lynch, MD, specializes in the nonoperative and operative treatment of hip and knee disorders in athletes. He is an expert in hip surgery and knee ligament reconstruction with minimally invasive and arthroscopic techniques. Dr. Lynch's particular clinical interests include injuries of the ACL, knee articular cartilage, and the meniscus. He also specializes in labral injuries of the hip, using advanced arthroscopic techniques. Dr. Lynch is

a former competitive athlete who now serves as a team physician for local sports teams.

A native of Omaha, Nebraska, Dr. Lynch earned his medical degree at Georgetown University School of Medicine. While pursuing his residency in orthopedic surgery at Northwestern

University in Chicago, he was active in research and in medical student and resident education. Dr. Lynch was selected for the American Academy of Orthopaedic Surgeons (AAOS) Alan Levine Scholars in Orthopaedic Graduate Medical Education Scholarship as one of two residents across the country to attend the AAOS Educators Course.

Dr. Lynch recently completed a sports medicine fellowship at the Cleveland Clinic. He has been the recipient of the prestigious Herodius Society North American Traveling Fellowship, working with knee articular cartilage specialists and hip arthroscopists across the United States. He has been actively involved in research throughout his medical career and has published numerous scientific and clinical articles in the area of hip and knee reconstruction. Dr. Lynch is particularly interested in clinical outcomes following these procedures and has recently been selected to participate in the AAOS/Orthopaedic Research Education Fund/Orthopaedic Research Study Clinical Scholar Career Development Program.

## Carroll Laboratories Usher in New Era in Musculoskeletal Research *(continued from page 2)*

training fellowship in 1958. “He remained a devoted friend and patron throughout his esteemed life,” says Dr. Levine. In 1996, Dr. Carroll formed the Orthopaedic Science and Research Foundation (OSRF) to promote research that would ultimately improve patient treatments and outcomes. OSRF seed funding has enabled Columbia clinician-scientists to secure grant awards from government, foundation, and industry sponsors.

“We are committed to developing and maintaining state-of-the-art translational research programs to enhance musculoskeletal health,” says **Francis Y. Lee, MD, PhD**, Director of the Carroll Research Laboratories, Professor of Orthopedic Surgery, Tenure, and the inaugural Robert E. Carroll and Jane Chace Carroll Laboratories Professor, Columbia University College of Physicians and Surgeons. “This is what the Carroll Research Laboratories are meant to be – a place where orthopedic surgeons are actively engaged in the most advanced research and where we can minimize the gap between modern science and clinical care.”

A prolific clinician-scientist, Dr. Lee is also Vice Chairman of Research, Chief of the Tumor and Bone Disease Service, and Director of the Center of Orthopaedic Research. Dr. Lee’s role as an NIH principal investigator and mentor has helped to establish the Department of Orthopedic Surgery’s leadership position in the field of musculoskeletal research. In 2013, Dr. Lee received a Department of Defense Grant and Established Investigator Award from the Musculoskeletal Transplant Foundation. Dr. Lee, who is one of less than 10 orthopedic surgeons in the country with two NIH R01 Research Grants, is currently pursuing translational investigations in inflammatory pathways in bone cancer, implant-host implant interface biology, fracture healing, and identifying new regulators of osteoclast formation.

A key goal of the Carroll Laboratories is to further develop collaborative relationships among colleagues to advance clinical and translational musculoskeletal research. “On the clinical side we have an outstanding group of surgeons, and now the Carroll Laboratories will better enable our surgeons to discuss ideas with



*Mrs. Jane Chace Carroll officially launches the opening of the Dr. Robert E. Carroll and Jane Chace Carroll Laboratories for Orthopedic Surgery.*

the superb and dedicated basic scientists,” says **Louis U. Bigliani, MD**, the Lila Acheson Wallace Professor and Professor and Chairman Emeritus of Orthopedic Surgery, Columbia University Medical Center.

“The Carroll Laboratories will also develop translational research programs as a tool to provide educational opportunities for students, residents, and fellows and to advance the careers for junior faculty members,” adds Dr. Lee.

### For More Information

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## Welcome to New Faculty Members *(continued from page 2)*



*Dr. Roshan P. Shah*

**Roshan P. Shah, MD, JD**, a specialist in hip and knee reconstruction, is trained in minimally invasive techniques that minimize pain and simplify recovery. Dr. Shah has a particular interest in complex primary and revision hip and knee replacements, as well as associated fractures and infections.

Dr. Shah received his MD from Yale University and his JD from Stanford University. He completed his residency in orthopedic surgery at

the University of Pennsylvania. There he received the DeForest Willard Award for outstanding performance as an orthopedic senior resident, and the Marvin E. Steinberg, MD Award in Adult Reconstruction. Dr. Shah also completed a postdoctoral research fellowship at the McKay Orthopaedic Research Laboratory in tissue

engineering for orthopedic surgery applications. Before joining NewYork-Presbyterian/Columbia, he held a fellowship in Adult Hip and Knee Reconstruction at Rush University.

Dr. Shah has published 18 peer-reviewed articles, five textbook chapters, and 13 editorials. He served as editor of the *University of Pennsylvania Orthopaedic Journal* and the *Yale Journal of Health Policy, Law, and Ethics*, as well as associate editor for the *Stanford Law & Policy Review*. He has been honored with four research awards, including first place at the Orthopaedic Research and Education Fund/Orthopaedic Research Society symposium; second place at the Philadelphia Orthopaedic Society for Sports Medicine Research Symposium; the AO Kathryn Cramer Award; and the *University of Pennsylvania Orthopaedic Journal* Resident Recognition Award.

Dr. Shah served as a Washington health policy fellow for the American Academy of Orthopaedic Surgeons and remains active in advocating for policies that serve patients, improve access to care, and support research and innovation.



## Advances in Orthopedics

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## Columbia Orthopedics Named Team Physicians to New York City Football Club

The New York City Football Club is the first Major League Soccer Club whose home will be located within the five boroughs, and NewYork-Presbyterian Hospital has recently become a founding sponsor and the official hospital of the club.

Columbia Orthopedics will provide team physician services, headed by **Christopher S. Ahmad, MD**, Chief of Sports Medicine, and **William N. Levine, MD**, Orthopedic Surgeon-in-Chief. "We look forward to providing top-notch medical care and helping the team succeed both on and off the field," says Dr. Levine.

NewYork-Presbyterian and the New York City Football Club will also collaborate on a host of community and health-related programs.



"We're thrilled to play a part in helping to bring soccer more firmly into New York City's sports and recreation scene and helping to ensure the safety of athletes," says **Steven J. Corwin, MD**, CEO of NewYork-Presbyterian Hospital.

"We are delighted to partner with the outstanding team at NewYork-Presbyterian Hospital and we welcome them to the New York City Football Club family," says Tim Perneti, Chief Business Officer. "Their innovative work and dynamic leadership mean NewYork-Presbyterian is perfectly placed to provide expert care and support for the club."

In March 2015, the club will kick off its inaugural Major League Soccer season in its first home, Yankee Stadium.



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