

ADVANCES IN REHABILITATION MEDICINE

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INSIDE THIS ISSUE

3 A Focus on Faculty
Julia L. Iafate, DO
Michael F. Saulle, DO
Joseph P. Solberg, DO
Katherine Yao, MD

5 Dual Honors for Dr. Joel Stein

5 Robotic Device for Parkinson's Disease Patients



NewYork-Presbyterian
Rehabilitation
ranks #12 in the nation.

Bringing Rehabilitation Medicine to the Developing World

Tanzania is located on the eastern coast of sub-Saharan Africa, with a population of some 38 million people and one physician per 50,000 patients. “And there are exactly zero rehabilitation medicine doctors in Tanzania. It is essentially an unknown specialty,” says **Alfred C. Gellhorn, MD**, Director of Sports Medicine for the Department of Rehabilitation Medicine at NewYork-Presbyterian/Weill Cornell Medical Center, who has made it his mission to change that. A former member of the Peace Corps in Africa



Dr. Alfred C. Gellhorn

before embarking on his medical career, Dr. Gellhorn has always had a desire to “go back and give back to that part of the world. It’s been a passion of mine for a long time.”

To that end, the Department of Rehabilitation Medicine Residency Program at NewYork-Presbyterian established the Global Health Elective in 2016. Under Dr. Gellhorn’s leadership, a resident and/or fellow spends a six-week rotation at several hospitals in Tanzania. “The elective serves many different

roles,” says Dr. Gellhorn. “There’s definitely an education component for both our physicians and local physicians, as well as service and volunteerism components. It is not only providing residents with an opportunity to teach on a wide range of topics, at the same time, they are also learning what it is like to practice in a low resource setting and to be creative with what you have and don’t have. I’m hoping that those skills will translate broadly into our residents’ practices when they graduate.”

When the team travels to Tanzania, they bring expertise as well as needed medical equipment, including ultrasound for improving the diagnostic and treatment capabilities of the Tanzanian physicians. “When we went initially, we wondered where we could be of assistance and what our role in the hospital and in the community might be,” says Dr. Gellhorn. “It turns out that it’s very broad – from stroke care and treatment for spinal cord injuries to the orthopedic clinic, where there are patients with a great deal of nonsurgical problems for which there is really no appropriate management for them at this point.”

Among other initiatives, the NewYork-Presbyterian physicians have created a stroke registry and set up a program for ultrasound-guided platelet-rich plasma (PRP) injections. “Osteoarthritis is a very disabling disease anywhere, but especially in low income countries where treatment options are extremely limited. Joint replacement is not available and even more conservative approaches, such as physical therapy, steroid injections, and viscosupplementation injections, are unavailable because of cost.”

Dr. Gellhorn and his colleagues have been providing treatment with PRP at NewYork-Presbyterian for a long time with good outcomes. “This has become of

(continued on page 2)

“It becomes more and more clear that there is a need for rehabilitation medicine in the developing world, which has not always been obvious. We tend to think that solving infectious disease, HIV, and providing clean water covers everything. The reality is that there is a lot of disability and need in the world, and we have much to give and to share from our perspective.”

— Dr. Alfred C. Gellhorn

Bringing Rehabilitation Medicine to the Developing World *(continued from page 1)*



Dr. Alfred C. Gellhorn



Dr. Isaac P. Syrop



Dr. Nasim A. Chowdhury

particular interest in Tanzania where there are so few resources, but everyone has blood. The program has been a huge success. What is even more amazing is that by donating blood for their own use, the patients are filling up the blood banks to treat anemia, another huge problem in Africa. The blood is used not only to treat arthritis, but also for transfusions for children with malaria and young mothers who may have postpartum hemorrhage.”

Now a member of the department’s Weill Cornell faculty and Medical Director of Cancer Rehabilitation, **Nasim A. Chowdhury, MD**, was the first resident to complete the Tanzania rotation. He says he feels fortunate for having had the experience, recalling one patient in particular who made a strong impression. “Her name was Happy, and she was in a school for children who are mentally handicapped because she walked with a limp,” says Dr. Chowdhury. “In her community, her limp was conflated with a lack of intellectual development, but what she really had was chronic hemarthrosis. There is so much education that needs to be done in teaching the elders how to properly evaluate their children so that they are not sent somewhere they don’t belong.”

During his rotation, Dr. Chowdhury worked in pediatrics and with burn patients, as well as in the ICU. “I wore many hats,” he says. “The purpose of our going there was to define and discover what was feasible to implement and what wasn’t. In fact, we found that anything we can envision, we can make happen, but it requires time on the ground. The Tanzanians have a lot of pride and a desire to make their country a better place, so anything is possible.”

Isaac P. Syrop, MD, the second resident to participate in the elective and who is now pursuing a sports medicine fellowship at Stanford University, also shares Dr. Chowdhury’s desire to become involved in global healthcare. Upon arrival in Mwanza, Dr. Syrop soon partnered with Dr. Isidor Ngayomela, an orthopedic trauma surgeon. “I spent a large part of my time in the orthopedic clinic treating musculoskeletal injuries very similar to what we would see in the U.S. – patients with arthritis of the knee and the hip, acute fractures treated nonoperatively, tendinopathy – and I quickly realized that the skill set of a rehabilitation doctor is extremely useful because so many patients suffer from musculoskeletal conditions for which there is little treatment in Tanzania,” says Dr. Syrop. “It was a shock that first day to note the acuity and severity that exists there.”

Dr. Syrop was instrumental in setting up the PRP protocol with Dr. Gellhorn. “During my stay we treated 40 patients with knee

osteoarthritis with PRP injections over four weeks and we followed up with them as well,” he says. “We were looking to see if the patients and doctors would accept it. They did, and the patients did great. We have documented their pain relief and improvement in function.”

In June 2017, Dr. Gellhorn and **Christopher J. Visco, MD**, Vice Chair of Education in the Department of Rehabilitation and Regenerative Medicine and Director of the Residency Program, presented at the United Nations session, “Meeting the Demands of the 21st Century Through Innovative Technology,” discussing the efforts of the Global Health Elective and in bringing the PRP protocol with ultrasound applications to Tanzania.

“One of our hopes as we develop and refine the Global Health Elective is that it becomes a model for other residency and fellowship training programs,” says Dr. Gellhorn. “The success and benefits on



In June 2017, Dr. Alfred C. Gellhorn (far left) and Dr. Christopher J. Visco (far right) presented their work on the Global Health Elective at a United Nations session on “Meeting the Demands of the 21st Century Through Innovative Technology.”

both sides have been so great that I think other programs would find it valuable involving their trainees in an initiative like this. As our relationship sphere gets stronger, it becomes more and more clear that there is a need for rehabilitation medicine in the developing world, which has not always been obvious. We tend to think that solving infectious disease, HIV, and providing clean water covers everything. The reality is that there is a lot of disability and need in the world, and we have much to give and to share from our perspective.”

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Focus on Faculty

Julia L. Iafrate, DO



As a former dancer, alpine skier, and collegiate soccer player, it was natural that **Julia L. Iafrate, DO**, would specialize in sports and musculoskeletal rehabilitation medicine. A native of Fonthill, Ontario, Canada, Dr. Iafrate suffered many musculoskeletal injuries over the years, allowing her a keen understanding of the medical challenges her patients face. “It helps to

be able to ‘talk the talk’ with the dancers and athletes I treat – I think they tend to have more faith in a provider who understands what they are experiencing,” says Dr. Iafrate, who joined the Department of Rehabilitation and Regenerative Medicine at NewYork-Presbyterian/Columbia University Irving Medical Center in August 2017.

After earning her medical degree at Midwestern University, Arizona College of Osteopathic Medicine, Dr. Iafrate completed a residency in physical medicine and rehabilitation at the Mayo Clinic, followed by a sports medicine fellowship at the University of Iowa. During her fellowship, she worked as team physician for the University of Iowa Hawkeyes football, men’s basketball, and men’s and women’s gymnastics teams.

Dr. Iafrate’s primary clinical interests include the full range of musculoskeletal injuries, diagnostic and interventional

ultrasound-guided procedures, college and professional level sports coverage, dance medicine, global health and nutrition, and resident education. She currently serves as one of the team physicians for the USA Ski Team and Columbia University Athletics.

Dr. Iafrate has particular expertise in minimally invasive procedures, including percutaneous tenotomies and fasciotomies, which use a technique that emulsifies damaged tissue with ultrasonic energy without disturbing the surrounding healthy tendon tissue. “I often use this approach as an alternative to surgery for patients with chronic tendon damage to their Achilles, plantar fascia, or patellar tendon, as well as tendons of the shoulder or elbow,” she says.

Dr. Iafrate, who also practices at the department’s office in Riverdale, New York, and runs a dance medicine clinic at the midtown location, is thrilled to be starting her medical career at NewYork-Presbyterian. “This is an absolutely phenomenal hospital with so many well-trained specialists,” she says. “I’m passionate about the field of rehabilitation and regenerative medicine. I hope I can offer a fresh perspective and especially contribute to the sports and dance medicine program at Columbia.”

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Michael F. Saulle, DO



When **Michael F. Saulle, DO**, was a kid watching a Yankees game with his dad in which Don Mattingly pulled a muscle at first base, he was more concerned if Mattingly was going to be ok. And what impressed him most was the guy in the white shirt who ran out onto the field to attend to him. “While most kids wanted to be Don Mattingly, I wanted to be the guy in the white shirt,” recalls Dr. Saulle.

Today, Dr. Saulle has realized his dream as a physiatrist specializing in nonoperative sports medicine in the Department of Rehabilitation Medicine at NewYork-Presbyterian/Weill Cornell Medical Center. Dual board certified in sports medicine and physical medicine and rehabilitation, Dr. Saulle has treated athletes at every level, from the weekend warrior to professional athletes. His expertise includes minimally invasive image-guided procedures for the diagnosis and treatment of musculoskeletal injuries using ultrasound and fluoroscopy, as well as regenerative treatments, such as platelet-rich plasma injections.

An avid sports enthusiast himself, Dr. Saulle played baseball for 17 years through almost every level. “In college I transitioned over to rowing crew, and then I realized I was not built as an endurance

athlete and so I switched to rugby,” says Dr. Saulle, who continues to pursue outdoor recreational activities, including rock climbing and skiing.

After earning his medical degree from Touro College of Osteopathic Medicine, Dr. Saulle completed residency training in physical medicine and rehabilitation at NewYork-Presbyterian, where he served as Chief Resident, followed by a fellowship in Interventional Spine and Sports Medicine here. “I was drawn to sports medicine specifically because it provides a comprehensive knowledge base for treatment of bones, joints, nerves, and muscles, and creates an overall treatment perspective for any type of low back, knee, and elbow pain, and any acute or chronic injury,” he says.

Dr. Saulle, who also practices at the Weill Cornell Medicine Center for Comprehensive Spine Care, believes patient education is key to successful treatment, and he ensures that each of his patients understands his or her condition, treatment options, and lifestyle modifications to optimize their musculoskeletal health. “I spend time getting to know what motivates my patients and the things they love to do because, ultimately, their goal and my goal has to be to get them back to those things,” he says.

For More Information

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Joseph P. Solberg, DO

Bringing particular expertise in interventional spine and pain medicine, **Joseph P. Solberg, DO**, joined the Department of Rehabilitation and Regenerative Medicine at NewYork-Presbyterian/Columbia University Irving Medical Center in November 2017. Dr. Solberg is a key member of the Daniel and Jane Och Spine Hospital at NewYork-Presbyterian Allen Hospital, where he provides nonoperative spine care as part of the

Spine Hospital's integrated, multidisciplinary approach to the treatment of spine disorders.

With the ultimate goal of improving a patient's quality of life, Dr. Solberg offers expertise that ranges from physical exercise to fluoroscopic or ultrasound-guided injections to medications and complementary therapies for both pain management and increasing functional capabilities. "We know that pain is both a physical and emotional experience, so treating pain from a multimodal, multidisciplinary platform is what will be most helpful to patients," says Dr. Solberg. "It's not just doing an injection or providing physical therapy. We also need to address the behavioral component and incorporate complementary therapies. A combination of these approaches is what will really make the difference."

For chronic low back pain, Dr. Solberg seeks to employ non-opioid and innovative therapies. "We are transitioning away from using opioids for chronic non-malignant back pain, going more

to the regenerative therapies and other opioid-sparing approaches, such as neuromodulation," explains Dr. Solberg. "There is a role for opioid medications in terms of acute pain, cancer pain, and post-surgical pain, but we need to carefully consider the risk versus the benefit of these medications for the chronic pain population."

Dr. Solberg's research focuses on vertebral compression fracture, a condition affecting some 1.5 million individuals. "People can have chronic pain even after the fractures heal," he says. "We're looking at the pain generation not so much in the vertebral body, but in the facet joints and facet joint capsule due to biomechanical changes with the spine. There is a paucity of evidence on how these posterior elements could be causing some of the chronic pain in vertebral compression fracture in the lumbar spine." Dr. Solberg and his colleagues are now developing a study to look at treating the posterior element pain with the goal of providing another option to help patients who continue to have pain from compression fractures.

Prior to joining Columbia, Dr. Solberg served on the faculty at the University of California Davis. Double board certified in physical medicine and rehabilitation and pain medicine, he received his medical degree at Western University of Health Sciences, followed by residency training in physical medicine and rehabilitation, serving as Chief Resident, at the University of California Davis. He then pursued fellowship training in pain medicine at the University of California Los Angeles and West Los Angeles VA Medical Center.

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Katherine Yao, MD

Having been a competitive gymnast at the junior Olympic level and a member of Yale University's NCAA Division I team, **Katherine Yao, MD**, well understands the obstacles that athletes of all ages face and the challenges of injury recovery. "I did gymnastics for most of my young life and I feel a particular connection to adolescents who compete in sports. They tend to have a lot of overuse injuries. I've been through it and I

know what it's like," says Dr. Yao, a physiatrist specializing in pediatric and adult sports medicine in the Department of Rehabilitation Medicine at NewYork-Presbyterian/Weill Cornell Medical Center caring for patients at both Weill Cornell and NewYork-Presbyterian Lower Manhattan Hospital.

Dr. Yao earned her medical degree from Albert Einstein College of Medicine and then completed her residency in physical medicine and rehabilitation at NewYork-Presbyterian, followed by a sports medicine fellowship at Harvard University's Boston Children's Hospital. While there, Dr. Yao treated dancers and musicians with the Boston Ballet, Boston Conservatory, and

Berklee College of Music. She also served as team physician for Northeastern University's Division I women's hockey team and the Middlesex High School football team.

Dr. Yao's expertise in nonoperative diagnostics and therapies includes ultrasound-guided injections, ultrasound-guided tenotomy, platelet-rich plasma (PRP) injections, prolotherapy, and other advanced regenerative medicine interventions. Her research is focused on the development of young athletes, particularly gymnasts, and how injury affects their growth patterns. "I hope to do more investigations on the regenerative techniques involving PRP and stem cells," says Dr. Yao. "In the older population, we need to demonstrate more clearly the efficacy of these different regenerative medicine approaches."

Dr. Yao plans to work closely with high schools and colleges in the community, as well as with the Weill Cornell Center for the Performing Artist. "Every patient is unique in his or her own way and should be treated holistically," adds Dr. Yao. "I strive to understand my patients' challenges from their perspective to achieve the best medical outcomes and help them return to doing what they love."

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Dual Honors for Dr. Joel Stein

In the decade since joining NewYork-Presbyterian and its affiliated medical colleges – Columbia University Irving Medical Center and Weill Cornell Medicine – as Physiatrist-in-Chief and Chairman of Rehabilitation and Regenerative Medicine, **Joel Stein, MD**, has not only developed renowned programs with more than 30 physician faculty members in adult and pediatric specialties across six Hospital campuses, he also has maintained an active clinical practice and a corresponding dedication to clinical research.

In recognition of his distinguished career and achievements in physical medicine, rehabilitation, and neurological recovery, Dr. Stein was presented with two prestigious awards in fall 2017.

C. Miller Fisher, MD Neuroscience Visionary Award

American Heart Association/American Stroke Association

In October 2017, the American Heart Association/American Stroke Association presented Dr. Joel Stein with the C. Miller Fisher, MD Neuroscience Visionary Award for his commitment to clinical research and the application of robotics and other technologies to facilitate recovery of motor function after stroke. In 2016, Dr. Stein served as Vice Chair of the AHA/ASA Guidelines Panel for Adult Stroke Rehabilitation and Recovery, and along with other members of the panel presented the new stroke guidelines at a congressional briefing in Washington, D.C. These guidelines are the first evidence-based guidelines that focus on rehabilitation and recovery of stroke survivors.

Dr. Stein has authored more than 50 original scientific articles and over 100 publications on stroke and neurological rehabilitation, written and co-authored books on stroke for the lay public, and has served as editor of a comprehensive medical textbook on the subject entitled *Stroke Recovery and Rehabilitation*. Dr. Stein accepted the award at the Northeast Cerebrovascular



Dr. Joel Stein

Consortium 12th Annual Summit, where he also gave the keynote address on the future of stroke rehabilitation.

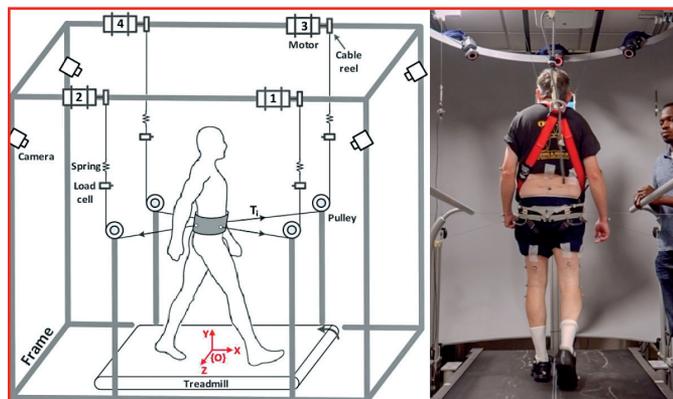
Distinguished Clinician Award

American Academy of Physical Medicine and Rehabilitation

Each year, the American Academy of Physical Medicine and Rehabilitation honors pioneering physiatrists, clinicians, researchers, and public servants who have made significant contributions to both the specialty and to people with disabilities. In 2017, the AAPM&R Annual Assembly recognized Dr. Joel Stein with its Distinguished Clinician Award. An academy member for more than 25 years, Dr. Stein has served as Chair of the CNS Council and a member of the Vertical Training Task Force for Stroke. In the announcement of his award, Dr. Stein was described by his colleagues “as the embodiment of the consummate clinician, thoughtful leader, wise scholar, and brilliant teacher.”

Robotic Device Improves Balance and Gait in Parkinson’s Disease Patients

A research team led by **Sunil K. Agrawal, PhD**, Professor of Mechanical Engineering and Rehabilitation/Regenerative Medicine, Columbia University, and **Dario Martelli**, a postdoctoral researcher in Dr. Agrawal’s lab, has shown that a single session of perturbation-



Schematic of Columbia Engineering’s robot-driven Tethered Pelvic Assist Device with a subject using the TPAD training method to improve stability in Parkinson’s disease patients while walking. (Courtesy of Sunil Agrawal/Columbia Engineering)

based training using their robot-driven device – Tethered Pelvic Assist Device (TPAD) – can improve the balance of patients with Parkinson’s disease (PD). Dr. Agrawal’s team has been working on this issue with Movement Disorders faculty in the Department of Neurology at Columbia. In a study published in *Scientific Reports*, they looked at whether or not PD affects patients’ balance and diminishes their ability to react and adapt to walking with perturbations. The researchers found that the ability to adapt to multiple perturbations or to modify responses to changing amplitudes or directions was not affected by PD; both the Parkinson’s and the healthy subjects controlled their reactive strategies in the same way. In fact, both groups improved their unperturbed walking after a single training session with repeated waist pull perturbations.

Reference Article

Martelli D, Luo L, Kang J, Kang UJ, Fahn S, Agrawal SK. Adaptation of stability during perturbed walking in Parkinson’s disease. *Scientific Reports*. 2017 Dec 19;7(1):17875.

For More Information

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NewYork Presbyterian's Physical Medicine and Rehabilitation Residency Program ranks #6 in the nation for 2017-2018 on Doximity's Residency Navigator.

Amazing Advances in Research, Technology, and Patient Care NewYork-Presbyterian's new clinical innovations site for professionals nyp.org/amazingadvances

Website screenshot showing NewYork-Presbyterian logo, social media icons, navigation bar, and 'CLINICAL INNOVATIONS' section with three featured articles: 'Rehab Medicine: At the Front Line of Spine Care', 'NYP OnDemand', and 'Making Strides in the Treatment of Hemorrhagic Stroke'.