



The University of Pennsylvania Musculoskeletal and Rheumatology Service Line

Tyler R. Morris, MD & Alexander L. Neuwirth, MD



Dr. L. Scott Levin

Under the leadership and vision of Dr. L. Scott Levin, the Department of Orthopaedic Surgery at the University of Pennsylvania is a proud proponent of the Penn Musculoskeletal and Rheumatology Service Line. The MSKR Service Line aims to address the multidisciplinary needs of patients with musculoskeletal and rheumatologic disorders. By enhancing collaboration between the departments of Orthopaedics, Anesthesia/Pain Management, Musculoskeletal Imaging, Physical Medicine & Rehabilitation, and Rheumatology and streamlining the allocation of care resources, Penn Medicine is able to provide more efficient services to patients in diagnosis, treatment and continuing care. This increased efficiency translates to improved outcomes while achieving cost containment, resulting in advanced improvement in patient care, clinical education, and academic research endeavors.

Anesthesia/Pain Management



Dr. Nabil Elkassabany

Under the direction of Dr. Nabil Elkassabany, the Department of Anesthesiology has been instrumental in improving care and maximizing value while establishing a regional anesthesiology practice. Increased use of regional anesthesia techniques is anticipated to improve pain control while simultaneously decreasing operative turn-over time, post-operative narcotic requirements, and post-operative PACU stays for patients undergoing

musculoskeletal extremity surgery.

The expanded capacity of six new operating rooms at Penn Medicine University City provides state-of-the-art anesthesia and pain care to Orthopaedic Surgery Patients. The PPMC Regional Anesthesia and Pain Service provide inpatient consultation for pain and palliative care services at PPMC in addition to outpatient pain services by faculty from the Pain Medicine Division.

Patient outcome data is collected throughout the clinical process, regardless of location, in an effort to accurately evaluate the effect of musculoskeletal care and develop innovative

solutions. This allows for improved care across disciplines and locations, and the implementation of evidence-based practices to provide high quality services to patients. On the pain medicine service, areas of focus include non-operative spine pain, osteoarthritis, and rheumatoid arthritis. Active efforts are underway to explore best practices with regard to perioperative care, including rapid implementation of novel methods of pain care, to facilitate patient recovery. Annual combined Grand Rounds, as well as research projects investigating the impact of surgical positioning on cerebral oxygenation, illustrate the collaboration between the Departments of Anesthesiology and Orthopaedic Surgery, as future generations of Musculoskeletal Anesthesiologists and Orthopaedic Surgeons train side by side under the umbrella of the MSKR Service line.

Musculoskeletal Imaging

With the opening of the Penn Center for Specialty Care at 3737 Market Street, the MSK radiology department is now housed in one location with close proximity to a myriad of clinical specialties. The culmination of multiple years of work toward a unified musculoskeletal system, the service line allows clinicians and image specialists to hone in on diagnoses and treatment options, which streamlines the process of patient care referrals in both directions.

Departmental meetings between Orthopaedics and Radiology are now held every 6 weeks, to facilitate and coordinate improved clinical education between specialties, as well as enhance collaborative research endeavors. Future plans include combined upper extremity, sports medicine, and foot and ankle conferences, as well as inter-departmental research illustrated by new projects involving rotator cuff tear imaging and the role of tomosynthesis in fracture diagnosis and treatment.



Bruce Kneeland, M.D.

Chief of MSK radiology Bruce Kneeland, M.D., states, "We've had great relationships with orthopaedic staff in the past; the collaboration between departments is heading in the right direction and we want to keep expanding. Incoming residents come into the program knowing research is an expectation. Dr. Levin is the single biggest reason I came back to work here...and he has been instrumental in building the relationship between Orthopaedics

and Radiology."

Physical Medicine and Rehabilitation

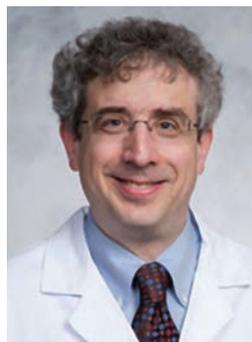
The long-time partnership between the Departments of Orthopaedics and Physical medicine and Rehabilitation has been further enhanced with the opening of the new Musculoskeletal Institute.

With a center of operations at 3737 Market Street, the Penn Center for Human Performance is a state of the art facility that opened in the spring of 2015 with the goal of simplifying access to care of patients with musculoskeletal disorders. This innovative, cutting edge center is designed to facilitate the evaluation of patients pre-operatively and post-operatively to objectively quantify the impact of surgical or non-surgical intervention. The brand new biofeedback laboratory is designed to help promote rehabilitation protocols and provide immediate feedback on patient recovery, biomechanical joint properties, and post-operative guidelines. Along with the in-house human performance lab, clinicians are able to gauge healing metrics through the elaborate combination of motion analysis, neuromuscular testing, on-site electromyography and metabolic measurement systems, contributing to the existing world class care provided by PM&R for amputees in both biofeedback and prosthetic selection and fitting.

In addition, the facility boasts innovative rehabilitation equipment and a large, centralized space to care for patients in all walks of life. An indoor pool allows for low impact training and rehabilitation, while in house imaging capabilities, including X-ray, CT-scan and MRI, translate to easier access to resources for patients. With a centralized location housing clinicians and health care professionals

from multiple departments, this center will enhance the common efforts of the PM&R and Orthopaedic teams to deliver the highest value of care.

Rheumatology



Peter A. Merkel, MD, MPH

Led by Division Chief and Professor of Medicine and Epidemiology, Peter A. Merkel, MD, MPH, the Division of Rheumatology at the University of Pennsylvania is the leading center for care and research for rheumatic diseases in the greater Philadelphia area.

Penn Rheumatology is proud of the hard work undertaken with our clinical partners in forming the Penn Musculoskeletal and Rheumatology Service Line and the Penn Musculoskeletal Center at 3737 Market Street. The MSK Center will be the premier location for multidisciplinary management of patients with bone and joint diseases as well as a site for introducing groundbreaking new approaches in the pursuit of advanced clinical and translational research endeavors. The MSKR Service Line provides additional opportunities to develop ever-more outstanding care and services for patients at all Penn Medicine sites.

Drs. Merkel and Levin share a common commitment to excellence and a ceaseless drive to accomplish all of Penn Medicine's missions in healthcare: excellence in clinical medicine, cutting edge research, and world-class-education.