



2019

ORTHOPAEDICS

ANNUAL  
REPORT

 WVU Medicine



# CONTENTS

## 01 WELCOME

## 02 FACULTY

06 Advanced Practice Providers

## 08 PATIENT CARE

09 Cartilage Repair

10 Trauma Patient Story

11 Foot and Ankle

12 Tumor Service Expansion

13 Clinical Informatics

14 System Building

## 16 RESIDENCY PROGRAM

18 Graduates and Current Residents

20 Resident Research Year

21 Presentations and Awards

## 22 RESEARCH

23 WWU Ortho in Outer Space

24 Resident Research Symposium

25 Active Grants

26 2019 Publications: Orthopaedic Surgery

## 28 THANK YOU





# THE CHAIRMAN'S

# WELCOME



**Sanford E. Emery MD, MBA**

Professor and Chairman  
Department of Orthopaedics  
Director of Surgical Services  
West Virginia University

I can honestly say this year in review was very strong for the Department of Orthopaedics and WVU Medicine! Remember, however, we are reviewing 2019, pre COVID! Next year's review for 2020 may not be as rosy; however, I am fairly confident that we will catch up with our clinical work by year's end.

2019 for our orthopaedic department showed continued growth. Dr. John Taras joined us as an experienced, nationally known hand surgeon. Dr. Richard Harris also started in 2019 as our fourth podiatrist. Dr. Mary Louise Russell, a pediatric PM&R physician, joined us at the end of 2019 as we grow our Division of Physical Medicine and Rehabilitation. We continue to be busy clinically, particularly in total joint surgery, spine, and hand. Certainly, the trauma volume has continued to increase and forever will!

Our residency training program remains robust. We had no citations from our latest ACGME survey and started to plant some of our graduating residents in WVU Medicine system hospitals and their respective communities. Our research program, anchored by four PhDs and two clinician scientists, has been extremely successful and continued to grow with significant external and federal funding. Construction began on a new pediatric hospital attached to J.W. Ruby Memorial Hospital, with a planned opening in 2021. A new outpatient clinic in Waynesburg, PA is up and running with several of our subspecialists seeing patients there. Currently, we see outpatients at five locations: University Town Centre (UTC), Physician Office Center (POC), Spine Center (attached to Healthworks), Fairmont Gateway Clinic, and the new Waynesburg Clinic.

This issue will again feature some highlights, updates, and data from 2019. As always, if you are in town, we would love to get together depending on the existing coronavirus rules and regulations!

My office is 304-293-1170 if you need anything. I hope you enjoy this edition of our annual report!

*Sanford E Emery MD*



# FACULTY



**Sanford E. Emery MD, MBA**

Chairman; Professor  
Orthopaedics, Surgery



**John C. France MD**

Chief, Spine Service;  
Professor and Vice Chairman.  
Director, Spine Fellowship



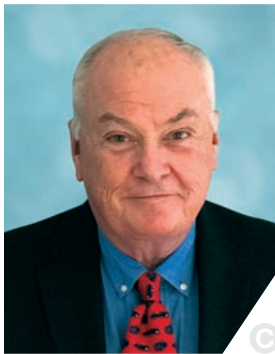
**George Bal MD**

Chief, Sports Medicine Service;  
Associate Professor



**Karen Barr MD**

Chief, Associate Professor,  
Physical Medicine and  
Rehabilitation



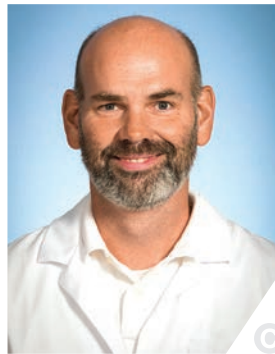
**J. David Blaha MD**

Professor, Orthopaedics



**Kathryn Bosia DPM**

Assistant Professor,  
Orthopaedics, Podiatry



**Jonathan Boyd PhD**

Associate Professor,  
Orthopaedics



**Michelle Bramer MD**

Assistant Professor,  
Orthopaedic Trauma



**Rusty Cain DPM**

Assistant Professor,  
Orthopaedics, Podiatry



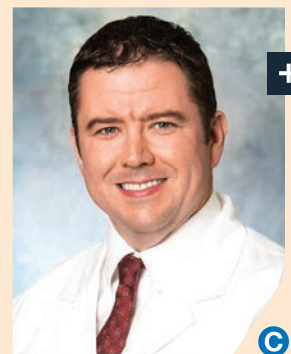
**Shari Cui MD**

Assistant Professor,  
Orthopaedics, Spine



**Scott Daffner MD**

Professor, Orthopaedics,  
Spine



**Matthew Dietz MD**

Associate Professor,  
Orthopaedics, Adult  
Reconstruction



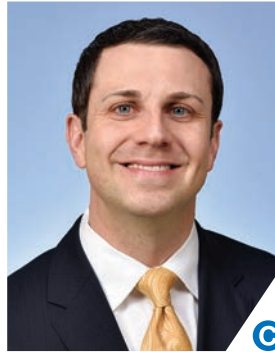


# CLINICAL AND RESEARCH



**Benjamin Frye MD**

Assistant Professor, Orthopaedics, Adult Reconstruction. Director, Adult Reconstruction Fellowship



**Derik Geist MD**

Assistant Professor, Orthopaedics, Sports Medicine



**Daniel Grant MD**

Assistant Professor, Pediatric Orthopaedics



**Richard Harris DPM**

Assistant Professor, Orthopaedics, Podiatry



**Natasha Harrison MD, MPP**

Assistant Professor Orthopaedics, Sports Medicine



**Bethany Honce MD**

Assistant Professor, Physical Medicine and Rehabilitation



**David F. Hubbard MD**

Chief, Orthopaedic Trauma Service; Professor, Orthopaedics



**Dina Jones PT, PhD**

Professor Orthopaedics, Human Performance - Physical Therapy, WVU Injury Control Research Center

## CONGRATULATIONS!

Congratulations to Dr. Scott Daffner and Dr. Matthew Dietz who received promotions on July 1, 2019. Dr. Daffner was promoted from Associate Professor to Professor, and Dr. Dietz was promoted from Assistant Professor to Associate Professor with Tenure.



**Cherie L. Kelly-Danhires DPM**

Assistant Professor, Orthopaedics, Podiatry

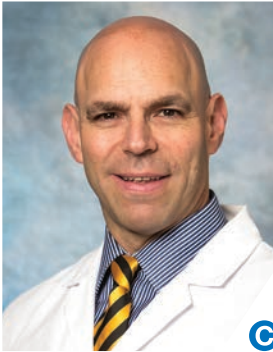


**Kathryn Kasicky MD**

Assistant Professor, Orthopaedics, Internal Medicine



# FACULTY



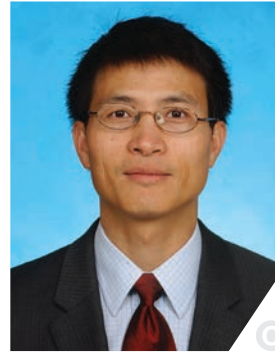
**Adam Klein MD**

Assistant Professor,  
Orthopaedics, Adult  
Reconstruction



**Andréa Lese MD**

Assistant Professor,  
Orthopaedics, Hand and  
Upper Extremity



**Bingyun Li PhD**

Professor, Orthopaedics,  
WVU Cancer Institute Research  
Programs



**Brock Lindsey MD**

Chief, Adult Reconstruction;  
Musculoskeletal Oncology, Assistant  
Professor, Orthopaedics; Director,  
Orthopaedic Research Laboratory



**John P. Lubicky MD**

Chief, Pediatric Orthopaedics;  
Professor, Orthopaedics



**David Lynch MD**

Assistant Professor, Physical  
Medicine and Rehabilitation



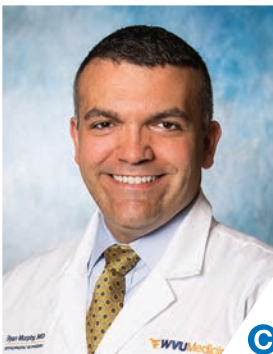
**E. Barry McDonough MD**

Associate Professor,  
Orthopaedics, Sports Medicine



**Benjamin Moorehead MD**

Assistant Professor,  
Orthopaedics, Sports Medicine



**T. Ryan Murphy MD**

Assistant Professor, Orthopaedics,  
Adult Reconstruction



**Jami Pincavitch MD**

Assistant Professor,  
Orthopaedics, Internal Medicine



**Ming Pei MD, PhD**

Professor, Orthopaedics; Associate  
Professor, Human Performance -  
Exercise Physiology; WVU Cancer  
Institute Research Programs



**B. Joseph Prud'homme MD**

Chief, Hand and Upper  
Extremity; Associate  
Professor, Orthopaedics





# CLINICAL AND RESEARCH



**Mary Louise Russell MD**

Assistant Professor, Physical Medicine and Rehabilitation



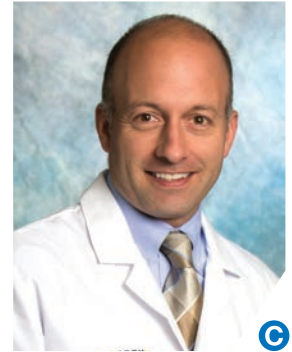
**Robert Santrock MD**

Chief, Foot and Ankle; Associate Professor, Orthopaedics



**Shafic Sraj MD**

Assistant Professor, Orthopaedics, Hand and Upper Extremity



**David Tager MD**

Assistant Professor, Pediatric Orthopaedics



**John Taras MD**

Professor, Orthopaedics, Hand and Upper Extremity



**Colleen Watkins MD**

Associate Professor, Orthopaedics, Rheumatology/ Metabolic Bone



**David Waxman MD**

Associate Professor, Orthopaedics, Adult Reconstruction

## WELCOME NEW FACULTY



2020



**Stephanie Ferimer MD**

Assistant Professor, Physical Medicine and Rehabilitation



2020



**Justin Lockrem MD**

Assistant Professor, Orthopaedics, Sports Medicine



2020



**N.M. Nuala Crotty MB BCh BAO**

Assistant Professor, Physical Medicine and Rehabilitation



# FACULTY & STAFF

## ADVANCED PRACTICE PROVIDERS



In addition to our many faculty and residents, the WVU Department of Orthopaedics employed the services of 22 Advanced Practice Providers (APPs) in 2019.

Our APPs included 20 Physician Assistants and 2 Nurse Practitioners. We also have an additional two Nurse Practitioners and three Physician Assistants who are expected to start throughout the summer in 2020.

As our department keeps expanding, the role of our APPs has continued to evolve to help meet the changing needs of orthopaedic patient care. These APPs play a vital role in our clinic and operating room efficiencies. Their responsibilities include, but are not limited to, evaluating and treating patients in clinic, assisting with surgeries and clinical procedures, pre-operative examinations, patient communication, triage, follow-up, and

data collection for ongoing research projects. Our APPs are involved in every subspecialty within our department as well as our Orthopaedic Medical Optimization Program (OMOP) and our inpatient service. In addition, several of our APPs participate in our satellite and outreach clinics across West Virginia and southwestern Pennsylvania. These providers travel with faculty to clinic locations in Fairmont, Parkersburg, Martinsburg, Wheeling, Summersville, and Waynesburg, PA. In collaboration with our faculty providers, our APPs continue to work diligently to provide high quality orthopaedic care to all of our patients at WVU Medicine.

## ADULT RECONSTRUCTION

Alicia Cooper, PA-C  
Kelsey Laughery, PA-C  
Kristianna Ricchio, PA-C  
Katie Seifried, PA-C  
Stacy Skidmore, PA-C

## ATHLETICS

Travis Randolph, PA-C

## FOOT & ANKLE

Jessica Rhodes, PA-C

## HAND & UPPER EXTREMITY

Colleen Allison, APRN  
Kyria Gaydosh, PA-C  
Jon Kline, PA-C  
Nikolas Tasser, PA-C

## INPATIENT

Laura Dent, PA-C  
Thomas Gocke, PA-C\*

## METABOLIC BONE DISEASE

Ashley Wilson, APRN

## MUSCULOSKELETAL ONCOLOGY

Morgan Neal, PA-C\*  
Stacy Skidmore, PA-C

## ORTHO MEDICAL OPTIMIZATION PROGRAM

Casey Mozingo, APRN\*

## PEDIATRIC ORTHOPAEDICS

Holly Bonnell, PA-C  
Brittney Dzugan, PA-C

## PHYSICAL MEDICINE AND REHABILITATION

Gyl Cendana, PA-C  
Meredith Liddle, PA-C

## SPINE

Ronald Bewick, PA-C  
Morgan Neal, PA-C\*  
Alex Stahl, PA-C\*  
Josee Zydonik, PA-C

## SPORTS MEDICINE

Kristopher Smith, PA-C  
Amy Stubblefield, PA-C

## TRAUMA

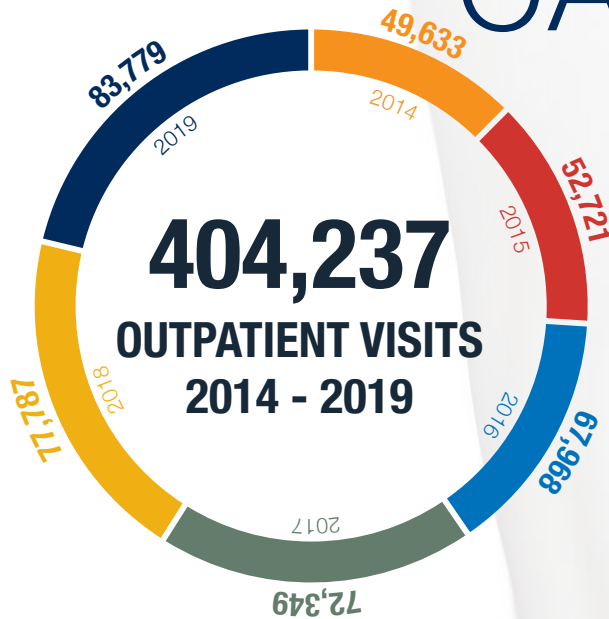
Laura Stravrakis, PA-C

\* *Incoming 2020*



# PATIENT

## CARE



### Orthopaedic Clinics

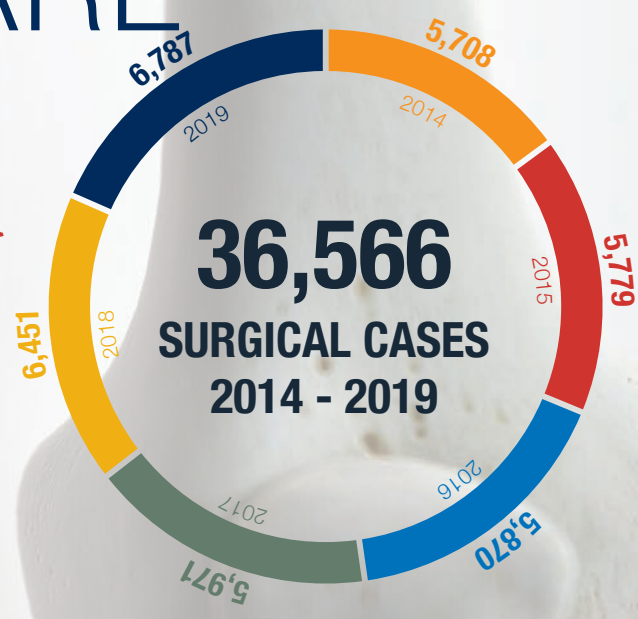
We have three conveniently located clinics in Morgantown, Fairmont, and now Waynesburg, PA. The Morgantown location is in the Physician Office Center, attached to J.W. Ruby Memorial Hospital. The Fairmont location is housed in our WVU Medicine Outpatient Center, directly across from the I-79 Downtown Fairmont exit. The recently opened Waynesburg clinic, which features multiple specialties, is located off the I-79 Waynesburg exit.

### University Town Centre

University Town Centre is the home for several of our Orthopaedic centers, including the Center for Joint Replacement, the WVU Sports Medicine Center, and the Orthopaedic Hand Clinic. WVU Medicine University Town Centre is conveniently located in the University Town Centre development just off I-79 in Granville. This spacious center offers patients access to their favorite primary care providers.

### Center for Joint Replacement at WVU Medicine

The Center for Joint Replacement at WVU Medicine offers patients a comprehensive planned course of treatment. We believe our patients play a key role in ensuring a successful recovery. Our goal is to involve our patients in their treatment through each step of the program.



### WVU Medicine Sports Medicine Center

WVU's Sports Medicine Center cares for athletes of all levels. We work to get all patients back to their highest level of activity possible. Our physicians manage sports-related injuries and medical conditions that include muscle and joint pain, sprains, and concussions. The WVU Sports Medicine Center has access to specialists from multiple disciplines, including Orthopaedics and experts from the WVU Spine Center. Individuals with sports injuries have same-day access to our services, which are available around the clock, seven days a week.

### WVU Spine Center

The WVU Spine Center brings specialists together with a multidisciplinary team approach to provide our patients with comprehensive spinal care. We use a full range of treatment options to ensure that patients with spine problems get the treatment they need quickly, efficiently, and easily. The Spine Center combines the expertise of WVU neurologists, orthopaedic specialists, neurosurgeons, pain management physicians, and rehabilitation services to target every patient's particular problem and provide optimal treatment.



# CARTILAGE REPAIR

Orthopaedic surgeons at WVU Medicine are now offering a procedure for the treatment of full thickness cartilage defects of the knee.

Matrix-impregnated autologous chondrocyte implantation, known as MACI, provides surgeons with a technically improved way to rebuild damaged and missing cartilage. WVU Medicine J.W. Ruby Memorial Hospital is the only hospital in the state to offer this procedure.

“With this procedure, we are able to repair defects to the cartilage of the knee before they progress and develop into osteoarthritis, which is more difficult to treat,” Barry McDonough, MD, WVU Medicine orthopaedic surgeon, said.

In the two-stage procedure, surgeons perform a biopsy of healthy cartilage tissue from a non-weight bearing area of the knee to be sent to the Vericel lab, where chondrocytes, the building blocks of cartilage, are extracted and grown on a collagen matrix.

The prepared matrix is then sent to the surgeon, who implants it into the knee to completely fill the defect.

“In the past, procedures to repair damaged cartilage were lengthy and technically difficult,” Dr. McDonough said. “Surgeons were required to stitch a matrix in place and inject the cartilage-forming chondrocytes under it, which was time consuming. This procedure, however, uses improved tools that simplify the process and eliminate the need for stitches to hold the implant in place.”

This procedure is appropriate for patients ages 18 to 55 who have cartilage defects due to trauma and is not available as a treatment for arthritic knee pain.

Patients can expect to return to full weight bearing six-to-eight weeks after the procedure and may require a recovery period of nine months or longer before returning to high impact athletic activity.



“In the past, procedures to repair damaged cartilage were lengthy and technically difficult. This procedure uses improved tools that simplify the process and eliminate the need for stitches to hold the implant in place.”

**E. Barry McDonough, MD**  
Associate Professor, Orthopaedics, Sports Medicine





# PATIENT CARE

## + TRAUMA

On September 1, 2019, Sherri Sisson was out enjoying a motorcycle ride when her life suddenly changed. She was involved in a severe accident in which she sustained multiple life and limb threatening injuries. After being emergently transferred to J.W. Ruby Memorial Hospital, Sherri was taken directly to the operating room. Through the swift and skilled work of the general surgery trauma team and the orthopaedic trauma team, she was cared for successfully and taken to the intensive care unit to stabilize. Over the next few days, Sherri had multiple operative procedures by both general surgery and orthopaedic surgery.

Sherri's injuries included a splenic laceration requiring a splenectomy, pneumothorax, rib fractures, intracranial hemorrhage, and multiple orthopaedic injuries. More specifically, she had an open left forearm fracture of both bones, a severely comminuted open left distal femur fracture with knee arthrotomy, and multiple traumatic wounds. Dr. David Hubbard and several orthopaedic residents were involved in her care on the night she presented at WVU. He was able to irrigate and debride her open fractures, internally fix her forearm, and temporarily stabilize her femur and knee. A few days later, Dr. Michelle Bramer and the orthopaedic trauma team successfully debrided and treated her femur fracture with internal fixation.

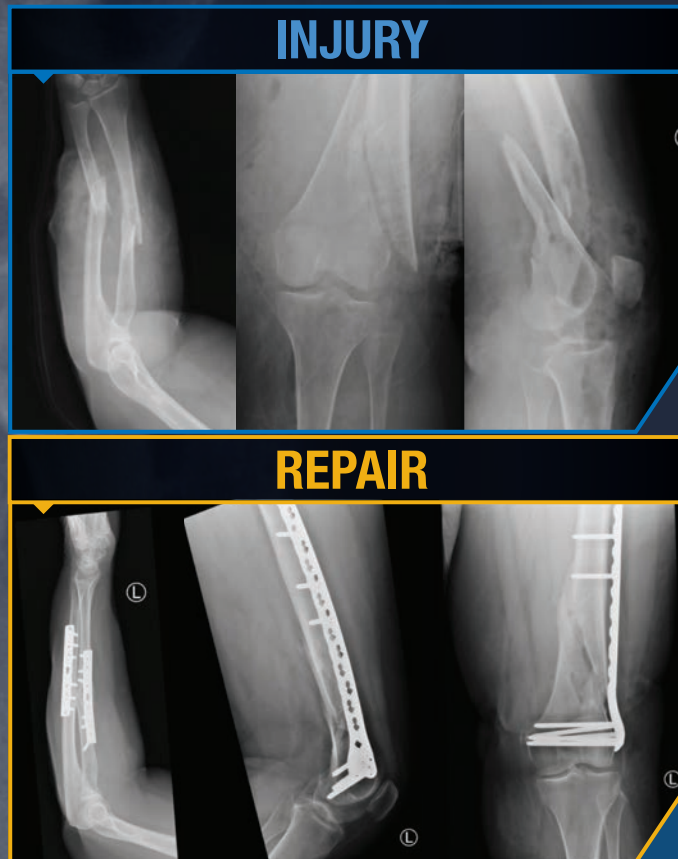
Unfortunately, Sherri's hospital course and postoperative rehabilitation were significantly more difficult due to a stroke she suffered

during her recovery period. However, her "no quit" attitude allowed her to focus intensely on her rehabilitation. And, although her course was complicated by an infection in her leg, she always remained positive and upbeat. A supportive network of family and friends who always had her best interests at heart helped.

It was a pleasure for the WVU orthopaedic trauma team to care for Sherri. We are extremely proud of the progress she has made in her recovery and happy to see she is doing so well. At her last visit, only six months from her injury, she had near full use of her arm and leg and was able to walk without pain. As always, she had a smile on her face and the most determined attitude to continue to make gains in her recovery.



Sherri Sisson, trauma patient





## A “REVOLUTION” IN THE TREATMENT OF BUNIONS

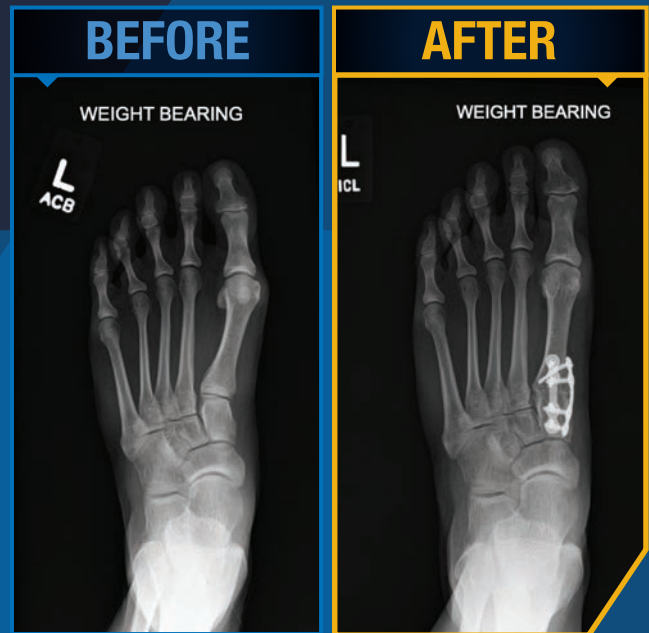
Most people think that bunions are caused by an ill-fitted shoe; however, this isn't the case. Bunions are a deviation of the great toe caused by an unstable joint in the midfoot. It is an inherited condition that affects up to approximately 30% of the U.S. population. Unfortunately, there are no effective conservative treatments for bunions, and surgeries have had a poor reputation for success as well. However, a “revolution” in bunion surgery is underway... and it began right here at West Virginia University.

WVU Medicine now offers patients a new bunion procedure with a much improved recovery time and better outcomes compared to previous bunion surgeries. Lapiplasty® is an outpatient surgery that three-dimensionally addresses the pathology in the midfoot that leads to the bunion deformity. Patients are back on their feet the same day, allowing them to walk in a boot immediately. WVU Medicine orthopaedic surgeon Robert Santrock, MD, helped develop this revolutionary new technique.

Traditional bunion surgery is a ‘cut and shift’ approach that addresses the bunion’s symptoms, but not the root cause. The bunion is significantly more likely to return to some degree following traditional surgery up to 30%-70% of the time!

Developed by four surgeons across the United States, including Dr. Santrock, the Lapiplasty® System is a patented technique, tool set, and specially designed instrumentation. This system is used to rotate the bone back into its normal anatomical position, thereby straightening the toe and removing the bump at the same time.

This procedure precisely corrects the entire bone, addresses the root cause of the bunion, and is a



3D solution for a 3D problem. The recovery time for this procedure is strikingly better than previous surgeries for bunions. Where traditional surgery requires the patient to be non-weight bearing for 3 months post-procedure, patients who undergo Lapiplasty® can bear weight on the treated foot (in a boot) immediately following the procedure.

As of today, more than 15,000 Lapiplasty® cases have been performed around the country. Dr. Santrock and his surgical colleagues have trained over 2,000 surgeons on the technique, and have more than ten peer-reviewed publications. Their goal is that this modern understanding of the 3D aspects of the hallux valgus deformity and its pathological contributions from the abnormal midfoot joint may “revolutionize” patient and surgeon options for sustained corrections and cosmetically pleasing results.

*Lapiplasty® is only available through trained specialists. If you or a patient has tried other therapies like wide shoes but are still experiencing pain – talk with your healthcare provider about a referral for Lapiplasty®. To make an appointment, call 855-WVU-CARE.*



# PATIENT CARE

## MUSCULOSKELETAL ONCOLOGY

### TUMOR SERVICE EXPANSION

#### Clinical Growth and Changes

The Division of Musculoskeletal Oncology continues to experience growth. In 2019, our tumor service handled over 350 new referrals for bone and soft tissue tumors, with the expectation that we will exceed those numbers in 2020. To accommodate this increase, our service hired another advanced practice provider, Morgan Neal, PA-C, who will start in July 2020. Her workload will be divided between our spine and tumor services in clinical and operating needs. In addition, to make delivering patient care more efficient, our seasoned RN, Jennifer Burns, handles new tumor referrals. She triages urgent referrals directly with Dr. Brock Lindsey. This process has improved both patient and referring provider satisfaction. Our PA-C, Stacy Skidmore, has handled the load of the orthopaedic oncology service along with Dr. Lindsey, and continued to provide tremendous care for our patients.

Very recently, we said goodbye to our one and only, Ruth Davis – our surgical scheduler and administrative assistant for the tumor team since its inception nine years ago. She retired to enjoy spending time with her new grandchild and is dearly missed by patients, providers, and staff. We continue to have a very active multidisciplinary tumor board headed by Sandra Malone of the WVU Cancer Institute. Members of this board include providers from all specialties: Dr. Patrick Tomboc (Pediatric Hematology-Oncology), Dr. Miklos Auber and Dr. Maria Hafez (Adult Hematology-Oncology), Dr. Todd Tenenholz (Radiation Oncology), Dr. Patrick Bacaj (Pathology), as well as orthopaedic oncology providers. We also have a multi-institutional sarcoma board that meets several times a month with providers from Marshall University, the Allegheny Health Network, and Louisville, KY. In addition, our division is in the process of recruiting another physician scientist and beginning a national search.

#### Translational Research Program

Our division has been intimately involved in translational research for years. We recently gained funding through an external grant from the Musculoskeletal Tumor Society and Sarcoma Strong Foundation. Through our Grateful Patient Program, we received a wonderful gift of \$50,000 from a patient whom we cannot thank enough for their support. We currently have several other grants pending. Our primary research focuses are immunotherapy for sarcoma and immunodiagnostics for treatment. We have made large strides this year in our study endeavors and we will be presenting our work at the Musculoskeletal Tumor Society meeting in Portland, Oregon in February 2020 and locally at the Pittsburgh Sarcoma Research Collaborative (PSaRC). Our tumor team has become involved as a charity group with Pittsburgh Cure Sarcoma to help raise awareness and funds for research support in sarcoma.

Additionally, we have strengthened our platform for a nanotechnology delivery system for immune therapy and continued to work on the immune diagnostics components. This work is being done simultaneously while creating several partnerships with other institutions such as the University of Virginia, the University of Pittsburgh Medical Center, and more recently, Astrolabe Diagnostics in New Jersey. In collaboration with West Virginia University, we have exciting news that our research program in the Division of Musculoskeletal Oncology will be creating a spinoff company in this area of research that will be based here in West Virginia. These are exciting times for our program!

Right: Brock Lindsey, MD with physician assistants Stacy Skidmore (L) and Morgan Neal (R)



# PATIENT CARE

## CLINICAL INFORMATICS

Moore's Law states that the number of transistors in a circuit doubles approximately every two years, a concept that was generated through observation and projection. It has been consistent over half a century. As such, the amount of data and information generated is logarithmically expanding. To address the growing need for management of healthcare data, the role of clinical informatics has been expanding in the WVU Department of Orthopaedics.

Clinical informatics is defined as the management of healthcare data and information through technology. More realistically, it is applying information to generate knowledge within a domain. Here in our department, there is a strong emphasis on data measurement, collection, and analysis. In conjunction with the Business Intelligence team, a detailed analysis of quality measures and outcomes is generated.

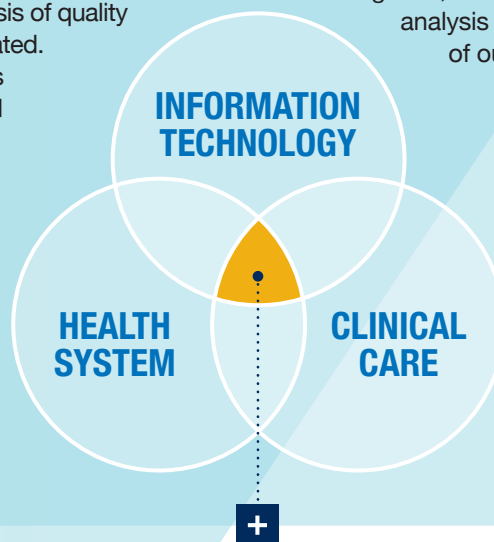
This information allows clinicians the ability to focus their time and energy on the most important issues. The knowledge obtained by these insights has become valuable in research, quality improvement, and patient outcomes.

As seen with COVID-19, the need to deploy rapid technology for patient care is a critical part of the future healthcare landscape.

Telemedicine has been implemented and integrated across our department for continued patient care and monitoring. Our Division of Pediatric Orthopaedics was at the forefront utilizing this technology before the pandemic and was well positioned to help support their patients.

In addition to telemedicine, there are multiple informatics projects currently in development. Our Center for Joint Replacement has been working to implement perioperative education and guidance through a mobile health platform. Additionally, the Division of Spine is currently utilizing clinical informatics and analytics through a multi-departmental dashboard and data repository. Our Patient Reported Outcome Measures (PROMs) have been integrated from the data warehouse into the electronic health record for improved access by our clinicians. The Orthopaedic Medical Optimization Program (OMOP) has utilized clinical informatics to look at process re-engineering and workflow analysis. As such, there have been multiple changes to workflow to improve efficiencies. Moving forward, there will be opportunities for artificial intelligence, machine learning, and predictive analysis to support the ongoing efforts of our clinical staff for patient care.

With data being processed at record amounts, the WVU Department of Orthopaedics is well positioned to handle the challenges and opportunities that are generated from such vast amounts of information through progressive implementation of clinical informatics within the department.



## CLINICAL INFORMATICS



# PATIENT CARE

## SYSTEM BUILDING

WVU Medicine has greatly expanded in the last ten years and created a true health system. Currently there are twelve hospitals in predominately north central West Virginia and southeast Pennsylvania that are either owned or affiliated with WVU Medicine. There are six other hospitals across West Virginia, Pennsylvania, and Ohio that are under management agreements. Some of the larger communities include Parkersburg, Clarksburg, Martinsburg, Wheeling, Summersville, Uniontown, PA, and Oakland, MD.

The Department of Orthopaedics has started to play a role in helping to develop the orthopaedic service line in some of these communities. Camden Clark Memorial Hospital in Parkersburg has been our most prominent success story. Dr. Jeff McElroy and Dr. George Herriott, who is an alumni of our orthopaedic residency, have had a long-standing orthopaedic practice in the Parkersburg and Marietta, OH area for many years. In 2019, they joined our WVU Health System. We arranged to have some of our senior residents visit a few of our satellite hospitals (“roadtrips!”) to get

a feel for these communities, their hospitals, and their orthopaedic needs. Lo and behold, two of our senior residents, Dr. Lunden Ryan and Dr. Alex Conti signed on to join Drs. McElroy and Herriott at Camden Clark. This created a critical mass for an orthopaedic group that is already beginning to flourish and serve the people of that community.

One of our goals as a residency training program is to help fill the need for orthopedic surgeons in the state of West Virginia, particularly at our satellite facilities. This ambition has the benefit of helping keep patients local, raising the quality of orthopaedic care in the state, and maintaining a relationship with our former residents for tertiary care referrals if needed. We are beginning to work with other hospitals to help with recruitment and establishment of best practices for their orthopaedic service lines, which is a win-win for our academic group and the WVU Health System.

**Keep an eye out for further news of growth in the near future!**



University Town Centre – Outpatient clinic location

### WVU Orthopaedic Clinic Locations

#### **MORGANTOWN**

Physician Office Center

#### **MORGANTOWN**

WVU Spine Center

#### **MORGANTOWN**

WVU Medicine Sports Medicine Center

#### **MORGANTOWN**

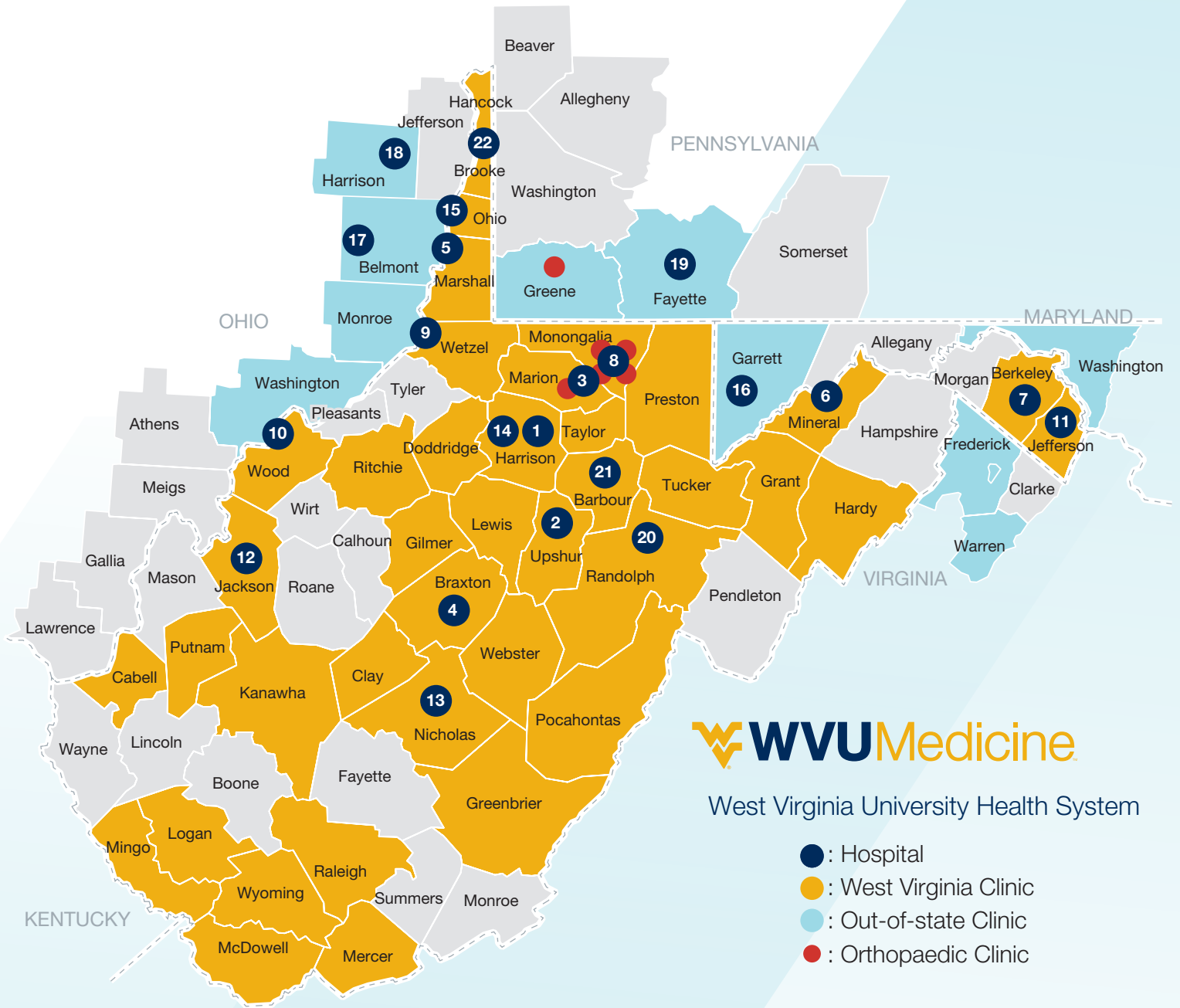
Center for Joint Replacement at WVU Medicine

#### **FAIRMONT**

WVU Medicine Outpatient Center: Fairmont

#### **WAYNESBURG**

WVU Medicine Outpatient Center: Waynesburg



West Virginia University Health System

- : Hospital
- : West Virginia Clinic
- : Out-of-state Clinic
- : Orthopaedic Clinic

### Member System Hospitals

- 1. BRIDGEPORT**  
United Hospital Center
- 2. BUCKHANNON**  
St. Joseph's Hospital
- 3. FAIRMONT**  
Fairmont Medical Center  
A CAMPUS OF J.W. RUBY  
MEMORIAL HOSPITAL
- 4. GASSAWAY**  
Braxton County Memorial  
Hospital
- 5. GLEN DALE**  
Reynolds Memorial Hospital
- 6. KEYSER**  
Potomac Valley Hospital

- 7. MARTINSBURG**  
Berkeley Medical Center
- 8. MORGANTOWN**  
J.W. Ruby Memorial Hospital  
and WVU Medicine Children's
- 9. NEW MARTINSVILLE**  
Wetzel County Hospital
- 10. PARKERSBURG**  
Camden Clark Medical Center
- 11. RANSON**  
Jefferson Medical Center
- 12. RIPLEY**  
Jackson General Hospital
- 13. SUMMERSVILLE**  
Summersville Regional  
Medical Center

### Managed Hospitals

- 14. CLARKSBURG**  
Highland-Clarksburg Hospital
- 15. WHEELING**  
Wheeling Hospital
- 16. OAKLAND, MARYLAND**  
Garrett Regional Medical Center
- 17. BARNESVILLE, OHIO**  
Barnesville Hospital
- 18. CADIZ, OHIO**  
Harrison Community Hospital
- 19. UNIONTOWN, PENNSYLVANIA**  
Uniontown Hospital

### Affiliate Hospitals

- 20. ELKINS**  
Davis Health System
- 21. PHILIPPI**  
Broaddus Hospital
- 22. WEIRTON**  
Weirton Medical Center





# RESIDENCY PROGRAM





The WVU Orthopaedic Surgery Residency had another successful academic year in 2019-2020. The residents continued to receive excellent training in each of the orthopaedic subspecialties at J.W. Ruby Memorial Hospital.

We welcomed four new interns this year, and their training started with an orthopaedic skills month that emphasized fundamentals in splinting, casting, x-ray interpretation, orthopaedic emergencies, and basic surgical skills. Residents continued to enjoy multiple educational opportunities at our top-notch facilities including our cadaver dissection lab and arthroscopy lab. In addition to education and training, the residents were productive with research efforts, presenting their work at multiple national and regional conferences. Additionally, the residents continue to mentor other medical professionals through casting and splinting workshops, medical student lectures, and anatomy labs.

Residents enjoyed multiple faculty-sponsored gatherings including various golf and dinner outings with Dr. Taras, Dr. Emery's "Intern

Welcome Party," and football tailgate parties hosted by Dr. Santrock. The residency program at WVU continues to be family-friendly, with one engagement and two families welcoming babies this year.

The chief resident class all attained competitive fellowships this year – Phillip Bostian (Indiana University – Adult Reconstruction), Mark Plumby (University of Cincinnati – Sports), and Richard Wardell (University of New Mexico - Sports). We are proud of our chief class and wish them the best of luck as they begin fellowship and start their practice in orthopaedic surgery.

As we say good-bye to the outgoing chiefs, we welcome a new intern class. The class of 2025-2026 includes Edwin Chaharbakhshi (Loyola University), Michael Quinet (Medical College of Georgia at Augusta University), Kenneth Sabacinski (Florida Atlantic University), and Nathaniel Williams (Pennsylvania State University).

The 2019-2020 academic year has been a successful one for the WVU Department of Orthopaedics. As WVU continues to train competent and conscientious orthopaedic surgeons, we look forward to what the 2020-2021 academic year has in store.



# RESIDENCY PROGRAM



**Phillip Bostian MD**

**SOM:** East Carolina University

**Fellowship:** Indiana University, Adult Reconstruction



**Mark Plumby MD**

**SOM:** West Virginia University

**Fellowship:** Beacon Orthopedics and Sports Medicine, Cincinnati, OH



**Richard Wardell MD**

**SOM:** University of Central Florida

**Fellowship:** University of New Mexico, Sports Medicine



**Alex Conti MD**

**SOM:** West Virginia University

**Fellowship:** Swedish Medical Center Trauma Fellowship



**Brian Grisez MD**

**SOM:** West Virginia University

**Fellowship:** Holy Cross Orthopaedic Institute Adult Reconstruction Fellowship



**Danny Liechti MD**

**SOM:** University of Illinois, Peoria

**Fellowship:** Fairview/Minneapolis Orthopaedic Sports Medicine Institute



**Lunden Ryan MD**

**SOM:** West Virginia University

**Fellowship:** University of Kentucky Orthopaedic Trauma Fellowship



**Daniel Shubert MD**

**SOM:** Tufts University

**Fellowship:** University of Missouri Orthopaedic Sports Medicine Fellowship



**Will Brooks MD**

**SOM:** East Tennessee State University



**Julie Glener MD**

**SOM:** University of Central Florida



**Jason Kinney MD**

**SOM:** Augusta University



**Justin Ray MD**

**SOM:** East Carolina University



# GRADUATES AND CURRENT RESIDENTS



**Justin Vaida MD**  
SOM: University of Massachusetts



**Patrick Luchini MD**  
SOM: West Virginia University



**Eric Neumann MD**  
SOM: West Virginia University



**Joshua Reside MD**  
SOM: University of Florida



**Taylor Shackelford MD**  
SOM: University of Kentucky



**Keenan Atwood MD**  
SOM: Medical College of Wisconsin



**Michael Booth MD**  
SOM: SUNY Upstate Medical University



**Michael Niemann MD**  
SOM: West Virginia University



**Benjamin Giertych MD**  
SOM: University of Wisconsin



**Michael Quinet MD**  
SOM: Medical College of Georgia at Augusta University



**Kenneth Sabacinski MD**  
SOM: Charles E. Schmidt College of Medicine at Florida Atlantic University



**Nathaniel Williams MD**  
SOM: Pennsylvania State University College of Medicine



**Edwin Chaharbakhshi MD**  
SOM: Loyola University Chicago Stritch School of Medicine



# RESIDENCY PROGRAM

+ RESIDENT RESEARCH YEAR PROVIDES DIVERSE, HANDS-ON OPPORTUNITIES



At West Virginia University, the Accreditation Council for Graduate Medical Education offers an accredited orthopaedic surgery research position each year. This position is a six-year track, compared to the traditional five-year categorical track. It is completed between the residents' first and second years.

During this time, residents have no hospital-based duties or call responsibilities, which provides them with the autonomy to establish and conduct their own research projects. They also have the opportunity to participate in ongoing studies alongside several faculty research members. The residents are expected to prepare grant submissions, oversee and manage studies, present poster and podium presentations, and submit peer-reviewed manuscripts.

Brock Lindsey, MD, (Chief, Adult Reconstruction and Musculoskeletal Oncology), is the Director of the WVU Department of Orthopaedics Research Laboratory and advises lab residents during their research year. He, along with Matthew Dietz, MD, (Adult Reconstruction), Ming Pei, MD, PhD, Bingyun Li, PhD, and Jonathan Boyd, PhD, conduct the majority of the Department's basic science research with main focuses on

- nanotechnology,
- immunotherapy,
- tissue regeneration,
- oncology,
- infection (biofilm), and
- toxicology.

The Department also has an active clinical research focus with ongoing projects in every orthopaedic subspecialty.

The WVU Orthopaedic Research Laboratory is located on the fifth floor of the WVU Health Sciences Center adjacent to the main hospital campus. The 4,000-square-foot lab space contains state-of-the-art amenities capable of conducting basic science research with emphasis on tissue engineering, nanotechnology, and cadaver and pre-clinical model studies.

The Research Resident also participates in daily resident education conferences, performs monthly cadaver dissection for anatomy conference, and occasionally provides lectures to students in the School of Medicine. The opportunities and experiences generated from this year are meant to serve as a foundation for a career as a clinician scientist.

## INTERESTED IN LEARNING MORE?

Please contact:

**Taylor Shackleford MD**

at [Taylor.Shackleford@hsc.wvu.edu](mailto:Taylor.Shackleford@hsc.wvu.edu)  
CURRENT RESEARCH RESIDENT

– OR –

**Brock Lindsey MD**

at [blindsey@hsc.wvu.edu](mailto:blindsey@hsc.wvu.edu)

ORTHOPAEDICS RESEARCH LABORATORY DIRECTOR



# RESIDENCY PROGRAM

## 2018-2019 PRESENTATIONS AND AWARDS


### Justin Ray MD 2022

- **Journal publication:** Dietz MJ, Ray JJ, Witten BG, Frye BM, Klein AE, and Lindsey BA. Portable Compression Devices in Total Joint Arthroplasty: Poor Outpatient Compliance. *Arthroplasty Today*, 6(1), 118-122 (Mar 2020). doi: 10.1016/j.artd.2019.12.004
- **Journal publication:** Ray JJ, Koay J, Dayton PD, Hatch DJ, Smith WB, and Santrock RD. Multicenter Early Radiographic Outcomes of Triplanar Tarsometatarsal Arthrodesis with Early Weightbearing. *Foot & Ankle International*, 40(8), 955-960 (Aug 2019). doi: 10.1177/1071100719847700
- **Journal publication:** Ray JJ, Friedmann AJ, Hanselman AE, Dayton PD, Hatch DJ, Smith WB, and Santrock RD. Hallux Valgus: Topical Review. *Foot & Ankle International*, 4(2), 1-12 (May 2019). doi: 10.1177/2473011419838500
- **Presentation:** Vaida J, Conti AD, Ray JJ, Bravin DA, and Bramer MA. "Evaluating the Efficacy of Vancomycin Powder in Treating Open Fractures."  
**Presented at:** Orthopaedic Trauma Association Annual Meeting. (Denver, CO, 2019).
- **Presentation:** Ray JJ, Koay J, Dayton PD, Hatch DJ, Smith WB, and Santrock RD. "Multicenter Early Radiographic Outcomes of Triplanar Tarsometatarsal (TMT) Arthrodesis with Early Weightbearing."  
**Presented at:** The 8th Annual Extremity Summit at Greenbrier Medical Institute (White Sulphur Springs, WV, 2019).
- **Poster:** Ray JJ, Lubicky JP, Lancaster J, and Grant DR. "Pain Medication Disposal Rates after Pediatric Surgery."  
**Presented at:** The American Orthopaedic Association Annual Leadership Meeting. (San Diego, CA, 2019).
- **Book chapter:** Ray JJ, Conti AD, and Santrock RD. "The Diabetic Foot." *Essential Orthopaedics, 2nd edition*. Elsevier, 2019. 759-761.
- **Book chapter:** Conti AD, Ray JJ, and Santrock RD. "Hallux Valgus." *Essential Orthopaedics, 2nd edition*. Elsevier, 2019. 737-739.

### Daniel Shubert MD 2020

- **Journal publication:** Shubert D, McDonough E. Bilateral medial and lateral patellofemoral ligament reconstruction in a patient with hypermobility type Ehlers-Danlos syndrome. *JBJS Case Connector*: July-September 2019; Volume 9, Issue 3, p e0359. doi: 10.2106/JBJS.CC.18.00359.
- **Journal publication:** Aman ZS, Peebles LA, Shubert D, Golijanin P, Dekker TJ, Provencher MT. Coracohumeral ligament reconstruction for patients with multidirectional shoulder instability. *Arthrosc Tech*: 2019 May 16;8(6):e561-e565. doi: 10.1016/j.eats.2019.01.018.
- **Presentation:** Shubert D, Shubert S. "Patient reported outcomes after shoulder surgery in a community orthopaedic practice: a 5-year Quality Improvement project using the QuickDASH questionnaire."  
**Presented at:** 50th Annual Meeting of the Eastern Orthopedic Association (Palm Beach, FL, 2019).



A satellite view of Earth from space, showing the Western Hemisphere. The image is dark with blue oceans, green landmasses, and white clouds. A large white geometric shape, resembling a stylized 'W' or a large arrow, is overlaid on the top half of the image, containing text.

Welcome to the West Virginia University Orthopaedic Research Laboratory. In the lab, you will find research and educational opportunities in the areas of tissue/cartilage engineering and adult stem cell research, nanotechnology/nanomedicine, toxicology, adult reconstruction, spine, sports medicine, trauma and hand and upper extremity.

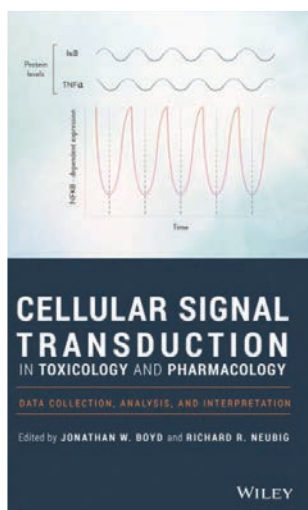
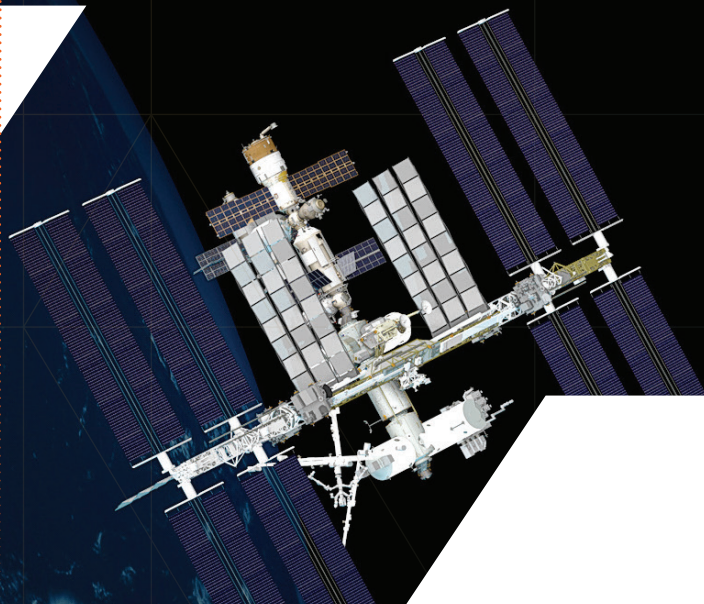
The laboratory conducts in vivo and in vitro research in a modern environment. The laboratory faculty and staff are multidisciplinary and include faculty from Orthopaedics, Microbiology and Immunology, Pathology, Chemistry, and Statistics. Graduate students from the university's Health Sciences Center collaborate with orthopaedic surgeons and bioengineers on MS and PhD research topics. The lab is situated within the Department of Orthopaedics at WVU and provides support to orthopaedic residents in research projects, both basic science and clinical. The lab is well equipped and encourages multidisciplinary musculoskeletal research between various departments in the Health Sciences Center.

# RESEARCH





# WVU ORTHO IN OUTER SPACE



In collaboration with the National Aeronautics and Space Administration (NASA), the United States Army Center for Environmental Health Research (USACEHR), and the Walter Reed Army Institute of Research (WRAIR), Dr. Jonathan Boyd is taking WVU Orthopaedics to outer space!

In 2019, Dr. Boyd collaborated with NASA and partners to write standard operating procedures for the proposed studies at the International Space Station (ISS). These included methods for husbandry, surgery, and necropsy of the models. These procedures were approved in early 2020. Additionally, he experimentally measured inflammation markers in tissues from models in the control group.

This mission has been in the works for several years; slated for 2021, the proposed models on the ISS will undergo femur fracture and fixation and will be allowed to heal for six weeks. Along with several controls on Earth and in space, Dr. Boyd will perform inflammasome and proteomic analyses on complete lower extremities. Simultaneously, the USACEHR and WRAIR will investigate the genomic and metabolomic changes to allow the team to develop a complete biomolecular understanding of the impacts of injuries and wound healing in a space environment. In the future, it is expected that injuries will occur on space missions and this early work will be used to inform additional planned studies. These studies will include treatment strategies to enhance recovery and rehabilitation.

*These study efforts were made possible through a Cooperative Research and Development Agreement (CRADA) between Dr. Boyd and USACEHR.*



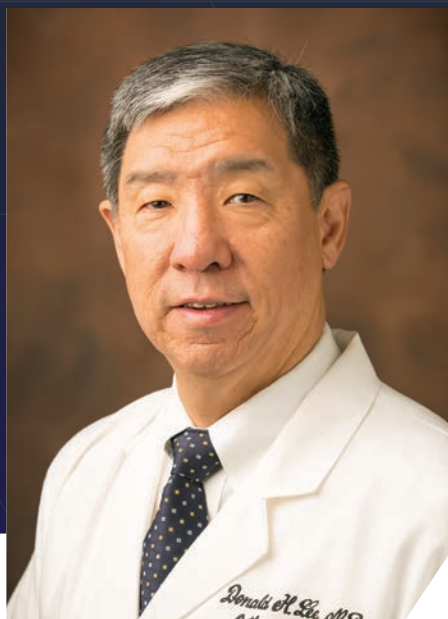
# RESEARCH

## + RESIDENT RESEARCH SYMPOSIUM

May 10, 2019

## RESIDENT RESEARCH SYMPOSIUM

Visiting Professor  
Donald H. Lee, MD



Dr. Lee attended college at Georgetown University in Washington, DC; he went to medical school at West Virginia University. After graduating, he completed an internship in general surgery at George Washington University Hospital followed by orthopedic surgery residency at the same university. He was a visiting fellow at the National Institutes of Health and completed a hand fellowship at Columbia-Presbyterian Medical Center in New York, NY. Since completing fellowship, Dr. Lee has worked at the University of Alabama at Birmingham before joining Vanderbilt University as a full professor in 2005. He has extensive committee experience and is a reviewer for several journals. He has a strong interest in research and has published in many different areas of the upper extremity.

**Jonathan Boyd PhD**

- Title: Neuroinflammation-related Phosphoprotein Signaling Pathways as Potential Therapeutic Targets for GWI using an Established Model  
Source: US DoD – Defense Health Agency
- Title: Future Fieldable Mass Spectrometry for Stress Biomarkers  
Source: Zeteo Tech, LLC

**Scott D. Daffner MD**

- Title: A Phase 2b, Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Safety and Efficacy of Staphylococcus Aureus 4-Antigen Vaccine (SA4Ag) in Adults Undergoing Elective Posterior Instrumented Spinal Fusion Procedures  
Source: Pfizer Pharmaceutical
- Title: A Prospective Study of OsteoAMP in Posterolateral Spinal Fusion: Patient Outcomes and Use in Clinical Practice  
Source: Bioventus, LLC
- Title: M6-C Artificial Cervical Disc IDE Pivotal Study  
Source: Spinal Kinetics

**Matthew J. Dietz MD**

- Title: Relationship of Biomarkers and Fluorescence in Prosthetic Knee Infections  
Source: US DHHS-NIH-National Institute of Arthritis, Musculoskeletal & Skin Diseases
- Title: Preclinical Assessment of an Active Antibiotic Spacer  
Source: West Virginia Clinical and Translational Science Institute
- Title: WVCTSI Research Scholar Program  
Source: West Virginia Clinical and Translational Science Institute

**John C. France MD**

- Title: Thoracolumbar Burst Fractures (AOSpine A3, A4) in Neurologically Intact Patients: An Observational, Multicenter Cohort Study Comparing Surgical Versus Non-Surgical Treatment  
Source: AO Research Foundation

**Benjamin M. Frye MD**

- Title: Fellowship in Adult Reconstruction  
Source: OMeGA Medical Grants Association

**David F. Hubbard MD**

- Title: Fixation Using Alternative Implants for the Treatment of Hip Fractures  
Source: McMaster University
- Title: A Prospective, Randomized, Multicenter Controlled Trial of CERAMENT™|G as Part of Surgical Repair of Open Diaphyseal Tibial Fractures  
Source: BONE SUPPORT AB

**Dina Jones PT, PhD**

- Title: A Randomized Controlled Trial of a Community-Based Chronic Pain Self-Management Program in West Virginia (PRC-SIP 17-001)  
Source: US DHHS – CDC - National Center for Chronic Disease Prevention and Health Promotion
- Title: Use of Tele-Exercise as an Alternative Delivery Channel for Translating an Evidence-Based Fall-Prevention Program into Practice for Older Adults in West Virginia  
Source: CDC National Center for Injury Prevention and Control

**Bingyun Li PhD**

- Title: Unique Nanotechnology Converts Carbon Dioxide to Valuable Products  
Source: US DoE – Department of Energy
- Title: Innovative Nano-Hybrids with Controlled Drug Release for Bone Regeneration  
Source: US DoD – Defense Health Agency
- Title: Innovative Implant Nanocoatings with Controlled Dual Drug Release for Bone Regeneration  
Source: US DoD – Secretary of Defense
- Title: 3D Printed Nanoclay Enhanced Calcium Phosphate Ceramic Composite  
Source: University of California at San Francisco
- Title: Targeting Intracellular Bacteria of Chronic Infections  
Source: WVU PSCoR – West Virginia University

**Brock A. Lindsey MD**

- Title: A Prospective, Post-Market, Multi-Center Study of Tritanium Acetabular Shell  
Source: Stryker
- Title: A Longitudinal Multicenter Study of Robotic-Arm Assisted THA: Acetabular Cup Placement Accuracy and Clinical Outcomes  
Source: Stryker
- Title: Delineating Mechanisms of Checkpoint Blockade Failure While Manipulating MDSC's as a Treatment to this Conundrum  
Source: Musculoskeletal Tumor Society / Sarcoma Strong Foundation
- Title: Comparative Effectiveness of Pulmonary Embolism Prevention after Hip and Knee Replacement (PEPPER): Balancing Safety and Effectiveness  
Source: Dartmouth College/Medical University of South Carolina

**Ming Pei MD, PhD**

- Title: Decellularized Matrix and Cartilage Regeneration  
Source: US DHHS – NIH – National Institute of Arthritis, Musculoskeletal, and Skin Disease
- Title: Allogeneic Matrix Mediated Cartilage Reconstruction  
Source: Musculoskeletal Transplant Foundation



# RESEARCH

## 2019 PUBLICATIONS: ORTHOPAEDICS

**FAITH-2 Investigators (includes Bal GK, Bramer MA, Daffner SD, Dietz MJ, Frye BM, Hubbard DF, Lindsey BA, Lubicky J, McDonough EB, Murphy TR), Slobogean GP, Sprague S, et al.** Fixation using alternative implants for the treatment of hip fractures (FAITH-2): design and rationale for a pilot multi-centre 2 x 2 factorial randomized controlled trial in young femoral neck fracture patients. *Pilot Feasibility Stud.* 2019;5:70. Published 2019 May 28. doi:10.1186/s40814-019-0458-x PMID: 31161044

Boukhemis K, Perez M, Olness E, Hensley JL, Lindstrom J, **McDonough EB, Bal GK.** Prospective Evaluation of Cognitive Outcomes After Anesthesia for Patients in the Beach Chair Position. *Orthopedics.* 2020;43(1):e27-e30. doi:10.3928/01477447-20191031-09 PMID: 31693746

Shubert DJ, Shepet KH, Kerns AF, **Bramer MA.** Postoperative chest radiograph after open reduction internal fixation of clavicle fractures: a necessary practice? *J Shoulder Elbow Surg.* 2019;28(5):e131-e136. doi:10.1016/j.jse.2018.09.016 PMID: 30509608

**Cui S, Daffner SD, France JC, Emery SE.** The Effects of Perioperative Corticosteroids on Dysphagia Following Surgical Procedures Involving the Anterior Cervical Spine: A Prospective, Randomized, Controlled, Double-Blinded Clinical Trial. *J Bone Joint Surg Am.* 2019;101(22):2007-2014. doi:10.2106/JBJS.19.00198 PMID: 31764363

**Daffner SD, Kim DH, Radcliff KE, Smith HE.** Avoiding and Managing Complications in Routine Lumbar Spine Surgery. *Instr Course Lect.* 2019;68:305-316. PMID: 32032069

Robinson WA, Carlson BC, Poppendeck H, Wanderman NR, Bunta AD, Murphy S, Sietsema DL, **Daffner SD, Edwards BJ, Watts NB, Tosi LL, Anderson PA, Freedman BA.** Osteoporosis-related Vertebral Fragility Fractures: A Review and Analysis of the American Orthopaedic Association's Own the Bone Database. *Spine (Phila Pa 1976).* 2020;45(8):E430-E438. doi:10.1097/BRS.0000000000003324 PMID: 31770343

**Dietz MJ, Klein AE, Lindsey BA, Duncan ST, Eicher JM, Gillig JD, Smith BR, Steele GD.** Posterior Hip Precautions Do Not Impact Early Recovery in Total Hip Arthroplasty: A Multicenter, Randomized, Controlled Study. *J Arthroplasty.* 2019;34(7S):S221-S227.e1. doi:10.1016/j.arth.2019.02.057 PMID: 30975478

Kang J, **Dietz MJ, Li B.** Antimicrobial peptide LL-37 is bactericidal against *Staphylococcus aureus* biofilms. *PLoS One.* 2019;14(6):e0216676. Published 2019 Jun 6. doi:10.1371/journal.pone.0216676 PMID: 31170191

Kang J, **Dietz MJ, Hughes K, Xing M, Li B.** Silver nanoparticles present high intracellular and extracellular killing against *Staphylococcus aureus*. *J Antimicrob Chemother.* 2019;74(6):1578-1585. doi:10.1093/jac/dkz053 PMID: 30778552

Lastinger A, McLeod N, **Dietz MJ, Guilfoose J, Sarwari AR.** Clinical Experience with Tigecycline in the Treatment of Prosthetic Joint Infections. *J Bone Jt Infect.* 2019;4(3):126-132. Published 2019 May 21. doi:10.7150/jbji.34866 PMID: 31192112

Aalirezaie A, Anoushiravani A, Cashman J, Choon D, Danoff J, **Dietz MD, Gold P, Schwarzkopf R, Sheehan E, Vigante D.** General Assembly, Prevention, Host Risk Mitigation - Local Factors: Proceedings of International Consensus on Orthopedic Infections. *J Arthroplasty.* 2019;34(2S):S37-S41. doi:10.1016/j.arth.2018.09.051 PMID: 30343966

Abouljoud MM, Backstein D, Battenberg A, **Dietz MD, et al.** Hip and Knee Section, Treatment, Surgical Technique: Proceedings of International Consensus on Orthopedic Infections [published correction appears in *J Arthroplasty.* 2019 Jun;34(6):1300]. *J Arthroplasty.* 2019;34(2S):S445-S451. doi:10.1016/j.arth.2018.09.029 PMID: 30348548

**Dietz MJ, Moushmoush O, Samora WP, Kish VL, Hamlin BR.** The Effect Of Increasing Femoral Head Size On The Force Required For Dislocation. *Surg Technol Int.* 2019;35:426-429. PMID: 31282981

**Emery SE; Carousel Presidents.** Diversity in Orthopaedic Surgery: International Perspectives: AOA Critical Issues. *J Bone Joint Surg Am.* 2019;101(21):e113. doi:10.2106/JBJS.19.00355 PMID: 31693523

Katsevman GA, **Emery E, France JC, Sedney CL.** Secondary Discitis Masquerading as Treatment Failure of Primary Discitis: Case Report and Review of the Literature. *Int J Spine Surg.* 2019;13(2):120-124. Published 2019 Apr 30. doi:10.14444/6016 PMID: 31131210

McGough EL, Lin SY, Belza B, **Jones DL, Minhui L, Wilcox S, Logsdon RG.** A Scoping Review of Physical Performance Outcome Measures Used in Exercise Interventions for Older Adults With Alzheimer Disease and Related Dementias. *J Geriatr Phys Ther.* 2019;42(1):28-47. doi:10.1519/JPT.0000000000000159 PMID: 29210934

**Lese A, Sraj S.** Rural Orthopedics: Providing Orthopedic Care in Rural Communities. *Orthopedics.* 2019;42(4):e350-e355. doi:10.3928/01477447-20190624-01 PMID: 31323106

Zhang S, Xing M, **Li B.** Recent advances in musculoskeletal local drug delivery. *Acta Biomater.* 2019;93:135-151. doi:10.1016/j.actbio.2019.01.043 PMID: 30685475

Members of Dr. Ming Pei's graduate research group



Helen HH, Khosrozadeh A, **Li B**, Luo G, Xing M, Zhong W. **An eco-friendly nanocellulose/RGO/in Situ formed Polyaniline for flexible and free-standing supercapacitors.** ACS Sustainable Chem Eng. 2019;7(5):4766-4776. doi:10.1021/acssuschemeng.8b04947

Liu T, Wang Y, Zhong W, **Li B**, et al. **Biomedical Applications of Layer-by-Layer Self-Assembly for Cell Encapsulation: Current Status and Future Perspectives.** Adv Healthc Mater. 2019;8(1):e1800939. doi:10.1002/adhm.201800939 PMID: 30511822

Song C, Zhang X, Wang L, Wen F, Xu K, Xiong W, Li C, **Li B**, Wang Q, Xing MMQ, Qiu X. **An Injectable Conductive Three-Dimensional Elastic Network by Tangled Surgical-Suture Spring for Heart Repair.** ACS Nano. 2019;13(12):14122-14137. doi:10.1021/acsnano.9b06761 PMID: 31774656

Schaeffer E, **Lubicky J**, Mulpuri K. **AAOS Appropriate Use Criteria: The Management of Developmental Dysplasia of the Hip in Infants up to 6 Months of Age: Intended for Use by General Pediatricians and Referring Physicians.** J Am Acad Orthop Surg. 2019;27(8):e364-e368. doi:10.5435/JAAOS-D-18-00500 PMID: 30418272

Schaeffer E, **Lubicky J**, Mulpuri K. **AAOS Appropriate Use Criteria: The Management of Developmental Dysplasia of the Hip in Infants up to Six Months of Age: Intended for Use by Orthopaedic Specialists.** J Am Acad Orthop Surg. 2019;27(8):e369-e372. doi:10.5435/JAAOS-D-18-00499 PMID: 30418271

Shubert DJ, **McDonough EB**. **Bilateral Medial and Lateral Patellofemoral Ligament Reconstruction in a Patient with Hypermobility Type Ehlers-Danlos Syndrome: A Case Report.** JBJS Case Connect. 2019;9(3):e0359. doi:10.2106/JBJS.CC.18.00359 PMID: 31390333

Zhou S, Fu Y, Zhang XB, **Pei M**. **Liver Kinase B1 Fine-Tunes Lineage Commitment of Human Fetal Synovium-Derived Stem Cells.** J Orthop Res. 2020;38(2):258-268. Epub 2019 Aug 30 doi:10.1002/jor.24449 PMID: 31429977

Li X, Chen S, Yan L, Wang J, **Pei M**. **Prospective application of stem cells to prevent post-operative skeletal fibrosis.** J Orthop Res. 2019;37(6):1236-1245. doi:10.1002/jor.24266 PMID: 30835890

Sun Y, Chen S, Zhang X, **Pei M**. **Significance of Cellular Cross-Talk in Stromal Vascular Fraction of Adipose Tissue in Neovascularization.** Arterioscler Thromb Vasc Biol. 2019;39(6):1034-1044. doi:10.1161/ATVBAHA.119.312425 PMID: 31018663

Zhou S, Chen S, Jiang Q, **Pei M**. **Determinants of stem cell lineage differentiation toward chondrogenesis versus adipogenesis.** Cell Mol Life Sci. 2019;76(9):1653-1680. doi:10.1007/s00018-019-03017-4 PMID: 30689010

Wang Y, Chen S, Yan Z, **Pei M**. **A prospect of cell immortalization combined with matrix microenvironmental optimization strategy for tissue engineering and regeneration.** Cell Biosci. 2019;9:7. Published 2019 Jan 5. doi:10.1186/s13578-018-0264-9 PMID: 30627420

Wang Y, Fu Y, Yan Z, Zhang XB, **Pei M**. **Impact of Fibronectin Knockout on Proliferation and Differentiation of Human Infrapatellar Fat Pad-Derived Stem Cells.** Front Bioeng Biotechnol. 2019;7:321. Published 2019 Nov 15. doi:10.3389/fbioe.2019.00321 PMID: 31803729



Jonathan Boyd, PhD with graduate students  
Nicole Prince (L) and Julia Penatzer (R)

Li J, Narayanan K, Zhang Y, Hill RC, He F, Hansen KC, **Pei M**. **Role of lineage-specific matrix in stem cell chondrogenesis.** Biomaterials. 2020;231:119681. Epub 2019 Dec 16. doi:10.1016/j.biomaterials.2019.119681 PMID: 31864016

Chen W, Chen X, Chen AC, Shi Q, Pan G, **Pei M**, et al. **Melatonin restores the osteoporosis-impaired osteogenic potential of bone marrow mesenchymal stem cells by preserving SIRT1-mediated intracellular antioxidant properties.** Free Radic Biol Med. 2020;146:92-106. Epub 2019 Oct 24. doi:10.1016/j.freeradbiomed.2019.10.412 PMID: 31669348

Yan J, Chen X, Pu C, Zhao Y, Liu X, Liu T, Pan G, Lin J, **Pei M**, et al. **Synovium stem cell-derived matrix enhances anti-inflammatory properties of rabbit articular chondrocytes via the SIRT1 pathway.** Mater Sci Eng C Mater Biol Appl. 2020;106:110286. Epub 2019 Oct 7. doi:10.1016/j.msec.2019.110286 PMID: 31753397

Shubert DJ, **Prud'homme J**, **Sraj S**. **Nerve Conduction Studies in Surgical Cubital Tunnel Syndrome Patients** [published online ahead of print, 2019 Apr 4]. Hand (N Y). 2019;1558944719840750. doi:10.1177/1558944719840750 PMID: 30947553

Conti ADB, **Santröck RD**. **Unipolar Osteochondral Allograft Transplantation of the Ankle for Posttraumatic Tibial Necrosis: A Case Report.** J Foot Ankle Surg. 2019;58(6):1262-1266. doi:10.1053/j.jfas.2019.03.008 PMID: 31679679

Ray JJ, Koay J, Dayton PD, Hatch DJ, Smith B, **Santröck RD**. **Multicenter Early Radiographic Outcomes of Triplanar Tarsometatarsal Arthrodesis With Early Weightbearing.** Foot Ankle Int. 2019;40(8):955-960. doi:10.1177/1071100719847700 PMID: 31056950

Dayton P, **Santröck R**, Kauwe M, et al. **Progression of Healing on Serial Radiographs Following First Ray Arthrodesis in the Foot Using a Biplanar Plating Technique Without Compression.** J Foot Ankle Surg. 2019;58(3):427-433. doi:10.1053/j.jfas.2018.09.001 PMID: 30803912

**Sraj S**. **Carpal Tunnel Release With Wide Awake Local Anesthesia and No Tourniquet: With Versus Without Epinephrine** [published online ahead of print, 2019 Dec 7]. Hand (N Y). 2019;1558944719890038. doi:10.1177/1558944719890038 PMID: 31813286


**Sraj S**. **Narcotic-Free, Over-the-Counter Pain Management After Wide-Awake Hand Surgery.** J Am Acad Orthop Surg Glob Res Rev. 2019;3(11):e19.00137. Published 2019 Nov 4. doi:10.5435/JAAOSGlobal-D-19-00137 PMID: 31875192



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