ORTHOPAEDIC LOCATIONS

PHYSICIAN OFFICE CENTER
1 Medical Center Drive
Morgantown, WV 26505

CLINICS:
– WVU ORTHOPAEDICS

WVU MEDICINE OUTPATIENT CENTER: FAIRMONT
100 Stony Hill Road
Fairmont, WV 26554

CLINICS:
– WVU ORTHOPAEDICS

WVU SPINE CENTER
943 Maple Drive
Morgantown, WV 26505

WVU MEDICINE UNIVERSITY TOWN CENTRE
6040 University Town Centre Drive
Morgantown, WV 26501

CLINICS:
– WVU MEDICINE SPORTS MEDICINE CENTER
– CENTER FOR JOINT REPLACEMENT AT WVU MEDICINE

Patients can call 855-WVU-CARE to schedule an appointment at any of our locations.

ORTHOPAEDICS
ANNUAL REPORT
2017

WVUMedicine.org // medicine.hsc.wvu.edu/ortho
The Department of Orthopaedics has been a major participant and contributor to the expansion of our healthcare system. In my opinion, orthopaedics has been good for the last decade, excellent for the past five years, and now we are an outstanding Department.

Here’s why:

- 33 Full-time faculty
- 3 Multidisciplinary centers (Total Joint, Sports Medicine, and Spine)
- Initiation of a Physical Medicine and Rehabilitation Division
- Nationally recognized “Own The Bone” Program for patients with osteoporosis
- Pre-op Optimization Program led by two newly recruited internal medicine faculty for our Department

- $1.4 million dollars in federal funding over the past two years, $1.9 million dollars in federal funding over the past five years, and $5.27 million dollars in total funding in the past 10 years
- 6 Faculty as ABOS Board Examiners, 6 Faculty as American Orthopaedic Association members
- Program development and team coverage for WVU Athletics
- Robotic surgery in spine and adult reconstruction
- Outreach programs in Charleston, Martinsburg, Parkersburg, and Summersville
- Overseas outreach to Haiti this coming October (Hospital Sacre Coeur)
- Increasing surgical volumes approximately 15 percent over the last 4 years
- Increasing clinical volumes approximately 50 percent over the last 4 years

WVU Medicine is booming! There are now nine hospitals in the WVU Medicine system and four managed hospitals. Here on the main campus, we have the Heart and Vascular Institute going strong, and the Rockefeller Neuroscience Institute started and will develop over the next few years. We have broken ground for the WVU Medicine children’s Hospital here on campus, which is very exciting.
Here at WVU Medicine, our mission is simple: to serve the people in the state of West Virginia and beyond in the diagnosis and treatment of all musculoskeletal conditions; to promote translational and clinical research that will impact the profession of orthopaedic surgery; and to train the best residents in the highest quality learning environment. Our subspecialty areas of expertise cover all of orthopaedics, i.e. total joint replacement, sports medicine, spine, foot and ankle, hand, pediatrics, trauma, and musculoskeletal oncology. Our physician’s assistants, nurses, schedulers, and staff are committed to helping patients in a friendly and efficient manner, looking at how we do business from the viewpoint of the customer. We have three principles for our entire departmental organization: excellence, customer service, and productivity.

We are an integral part of the WVU Health Sciences Center and J.W. Ruby Memorial Hospital. Our outpatient locations include the University Town Centre (our ambulatory site, which houses our Center for Joint Replacement, Sports Medicine Center, and hand programs); the Physician Office Center attached to Ruby Memorial Hospital; and the WVU Spine Center located in the HealthWorks building on Maple Drive. Our phone numbers are provided for scheduling appointments, for questions for physicians and their offices, or whatever else our patients may need.

We look forward to servicing Morgantown, the state of West Virginia, and the surrounding regions.

WVU Medicine has been recognized by the American Orthopaedic Association Own the Bone® Program as a 2019 Star Performer. The program is aimed at better identifying, evaluating, and treating patients who suffer from an osteoporosis or low bone density-related fracture.

Own the Bone® brings attention to the severe health implications of fragility fractures, which commonly result from minor falls.

“Patients who are prone to fragility fractures require additional care and support from our clinical staff,” Colleen Watkins, MD, WVU Medicine orthopaedic specialist, said. “We are proud to be able to offer a multidisciplinary approach to ensure these patients receive comprehensive and safe care.”

According to the National Osteoporosis Foundation, up to 50 percent of all women and 25 percent of men over the age of 50 years will sustain a fragility fracture. Studies show that patients who have had a fragility fracture are two-to-four times more likely to experience another fracture than those who have never had a fracture.

“We have implemented fall prevention programs that ensure patient safety during outpatient visits and inpatient stays,” Dr. Watkins said. “These programs have shown a significant decrease in injuries to both patients and staff.”

Own the Bone Star Performer designation is awarded to institutions that have achieved a 75 percent compliance rate with at least five of the 10 Own the Bone® prevention measures.
SOCIETY POSITIONS AND NATIONAL COMMITTEES

Sanford E. Emery MD, MBA

John C. France MD
AOS: Spine Program Committee, 2013-2017
AOSNA: Education Committee, 2010-2013; Board Member, 2006-2010
CSRS: Research Committee, 2012-2013; Education Committee, 2007-present
OTA: Development Fund Committee, 2014-2017
SRS: Education Committee, 2011-2016

Scott Daffner MD
CSRS: Research Committee, 2014-2017; Member Survey Committee, 2015-2016
NASS: Membership Committee, 2009-present
Lumbar Spine Research Society: Program Committee, 2016-present

Matthew Dietz MD
AARHKS: Research Committee, 2017-present

Daniel Grant MD
POSNA CORE: Curriculum Committee, 2016-present

Natasha Harrison MD, MPP
AMSSM: Membership Committee, 2013-present

David F. Hubbard MD, MBA
AO Foundation: Board of Trustees, 2011-2013
AO North America: Musculoskeletal Trauma Education Committee, 2009-present
OTA: Education Committee 2008-2010
ORTHOPAEDICS CLINICS
We have two conveniently located clinics in Morgantown and Fairmont. 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.

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 Orthopaedics 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.

In the fall of 2017, the Orthopaedics Infectious Disease Clinic was established at the WVU Center for Joint Replacement. More than 100 patients have been treated since its inception. The goals of the clinic are to decrease the number of patient visits, increase patient satisfaction, and improve patient care by improving communication and team-based care between ID and Orthopaedics. The combined clinic has been a great success.

Patients are usually identified in the inpatient setting when they are seen by Orthopaedics and ID. Follow-up is coordinated at the time of discharge.

Previously, patients had to make separate appointments and trips to the two specialty clinics. Each individual visit would usually take more than 30 minutes, not to mention the travel time, especially if the visits were on separate days. Now patients are able to manage both concerns in one convenient location in less than 45 minutes.

Current care teams consist of one Infectious Disease specialist and two to three orthopaedic specialists.

“Mom lives in a rural area. The senior van brings her to her visits, and she has to climb in and out of the van. The less times she has to get in and out of the van, the better it is for her. I love the convenience of her being able to be seen in one clinic. It also frees up the van for other seniors who might need it. I love that Orthopaedics and ID communicate on the same day and have a plan when the patient leaves clinic.”

– Sherry R.

“From all I’ve been through, I come here and can be given a definitive plan. That’s top notch. The doctors here are genuinely concerned about their patients. They make sure their patients are heard.”

– John W.

Tara Chico, PA-C
WVU Medicine Market Management
Shane Lyons, director of athletics and associate vice president at West Virginia University, has overseen and led the growth of 18 Mountaineer athletics programs since his arrival in 2015. The Athletic Department has seen unparalleled success in the past few years under his leadership.

But, what happens when an active leader begins having joint pain and difficulty with mobility?

Lyons had been pushing through right knee pain for a long time, but, in the past two years, it had become so severe that he had difficulty with simple activities of daily living and sleeping. This pain made his busy, active schedule difficult and was no longer helped by medication, exercise, or injections.

Lyons was living with severe knee arthritis, and after discussion with Benjamin Frye, MD, at the WVU Medicine Center for Joint Replacement, he decided to proceed with outpatient total knee replacement surgery.

"Mr. Lyons’ young age and good health made him an ideal candidate for outpatient total knee replacement surgery. The surgical techniques, pain control, and rapid recovery protocols at the WVU Medicine Center for Joint Replacement have made outpatient joint replacement surgery a reality," Dr. Frye said.

Lyons’ knee surgery was performed at 7:00 am on January 4, 2018. He was up walking within hours and was discharged home by 3:00 pm that same day.

"I heard what you all said, ‘You’re not sick. Go home, and start the movement and activity.’ There’s going to be some pain, you know that initially, but you get over that in the first 72 hours,” Lyons said. “You keep pushing yourself a little more each day to get more mobility and strength, and it comes back pretty quickly as long as you’re doing your exercises and are prepared for it.

Lyons has seen an excellent recovery after knee replacement. His pain is gone, and his mobility and quality of life have seen dramatic improvement.

"The aches and pains that I had before are not there anymore. It’s been six months now, but it feels like it’s been my knee when I was 20 years old."

The WVU Medicine Center for Joint Replacement started offering outpatient hip and knee replacement surgery to appropriate candidates in 2016.
At urging of John P. Lubicky, MD, professor of orthopaedic surgery and pediatrics and chief of Pediatric Orthopaedic Surgery, WVU Medicine Children’s received the state’s first and only EOS Imaging system in July 2017. This 2D/3D technology has become a staple in major children’s hospitals across the country and the world. Its main uses are for imaging the spine and leg alignment. While its primary patient focus is children, it is useful for leg alignment assessment in adult lower extremity patients as well.

The ultrasonic multi-wire proportional chamber detector can detect x-rays at much lower dose to the patient but can still produce excellent images.

The EOS system also allows simultaneous anteroposterior (AP) and lateral 2D images of the whole body to be taken in a calibrated environment, permitting the 3D reconstruction of spine and lower limb bony structures by stereo-radiography.

The images are taken in the standing (or, if need be, sitting) position, allowing the spine and lower limbs to be examined under normal weight-bearing conditions.

The sterEOS software bundled with the EOS imaging system makes it possible to perform 3D reconstruction of bone structures. It uses algorithms based on statistical modeling and bone-shape recognition.

By using the stereographic software application’s valuable 3D information, the patient’s anatomy can be visualized from numerous perspectives. It can automatically calculate more than 100 unbiased clinical parameters; provide 3D print models to improve communication with patient and medical team; and can help plan surgeries in 3D with web-based, surgical planning software.

Having this new technology at WVU Medicine Children’s has raised the standard of pediatric services we are providing.

The Department of Orthopaedics expanded in September 2017 with the addition of the Division of Physical Medicine and Rehabilitation (PM&R). Unlike other medical specialties that focus on a medical “cure,” the goal of PM&R physiatrists is to maximize patients function, increase independence, and improve quality of life.

The Division currently has two faculty members, Karen Barr, MD, chief of PM&R, and Bethany Honce, MD.

Dr. Barr joins us from the University of Washington, where she was residency program director and director of electrodiagnostics. Dr. Barr sees patients at the Spine Center and does electrodiagnostic studies at the EMG lab.

Dr. Honce grew up in Martinsburg and is a WVU School of Medicine graduate. She was in private practice in Morgantown prior to joining the division. She directs care for WVU patients admitted for inpatient rehabilitation at HealthSouth MountainView in Morgantown, as well as treats patients in the outpatient setting. Both also see patients in consultation at J.W. Ruby Memorial Hospital.

Typical conditions include:
- Patients with neurological problems, such as spinal cord injury, stroke, spasticity, and peripheral neuropathy.
- Patients with neurological and musculoskeletal consequences of cancer and cancer treatments or other significant medical illnesses who fail to recover to their baseline function.
- Patients with musculoskeletal problems, such as tendinitis, joint pain, neck, and back pain.
- Patients with amputations and gait or balance problems.

Treatments may include:
- Adaptive devices
- Injections
- Medications
- Therapeutic exercises
- Cognitive therapy

Referral forms for the Spine Center and other service lines can be found at: WVUMedicine.org/health-professionals
The West Virginia University Department of Orthopaedics Residency Program had another successful academic year in 2017-2018. The residents received excellent training and operative experience in each of the subspecialties, including Trauma, Adult Reconstruction, Pediatrics, Sports, Foot and Ankle, Oncology, Spine, and Hand.

The intern class started training in July with an Orthopaedic Skills Month, which provided an introduction to splinting, casting, x-ray interpretation, orthopaedic emergencies, and other important topics. Residents enjoyed routine educational opportunities in our anatomy dissection lab and arthroscopy lab.

Research was a top priority for the program this year. The residents were quite productive, presenting their work at multiple local, regional, and national meetings. In addition, the residents enjoyed teaching external fixator application and compartment fasciotomy technique to several groups of Army Special Forces Medics from Fort Bragg, North Carolina. Athletic coverage for the varsity football team was another favorite experience for residents.

In addition to learning orthopaedics, the residents were involved in many extracurricular events. The once legendary softball team was revived and enjoyed a successful year. Unfortunately, the team fell a little short in playoffs. The residents also enjoyed a post-OITE party sponsored by the faculty. Tailgates hosted by Dr. Santrock continued to be a favorite tradition. Over the holidays, many resident families got together to celebrate Thanksgiving and New Year’s Eve. There were also several trips to Pittsburgh to enjoy the zoo, Pirates games, concerts, and festivals. Lastly, the resident room received major upgrades with a donated flat screen TV and Nintendo 64. This led to many heated Mario Kart competitions.

The PGY-5 chief resident class will graduate in June 2018 and will begin fellowship training in August 2019. The graduating residents include Andrew Hanselman (Duke University – Foot and Ankle), Andrew Friedmann (University of Texas at Houston – Foot and Ankle), Daniel Bravin (University of California, Davis – Trauma), and Ross Smith (Ortholindy – Trauma). We are extremely proud of our chief residents and wish them the best of luck as they begin fellowship and start to practice.

As we say goodbye to the PGY-5 class, we are excited to welcome in a new class of interns. The class of 2023/2024 will include Patrick Luchini (West Virginia University), Eric Neuman (West Virginia University), Joshua Reside (University of Florida), and Taylor Shackelford (University of Kentucky). Taylor will be the research year resident after his intern year. We can’t wait for the new crew to arrive on campus.

The 2017-2018 academic year has been an excellent year for the Department of Orthopaedics. We continue to evolve our resident education in an effort to train competent and conscientious orthopaedic surgeons. We look forward to what the 2018-2019 year has in store.
RESIDENCY PROGRAM

GRADUATES AND CURRENT RESIDENTS

Daniel Bravin MD
SOM: Texas Tech University
Fellowship: University of California, Davis, Orthopaedic Surgery Trauma

Andrew Friedmann MD
SOM: University of Toledo
Fellowship: University of Texas, Houston, Foot and Ankle

Andrew Hanselman MD
SOM: West Virginia University
Fellowship: Duke, Foot and Ankle

Ross Smith MD
SOM: University of Tennessee
Fellowship: OrthoIndy, Orthopaedic Trauma

Jonathan Karnes MD
SOM: Ohio State University
Fellowship: University of Wisconsin, Spine

Joshua Russell MD
SOM: University of Texas, San Antonio
Fellowship: Baylor/SAOG Sports Medicine

Kevin Shepet MD
SOM: University of Wisconsin
Fellowship: Vanderbilt University, Orthopaedic Sports Medicine & Shoulder Surgery

Phillip Bostian MD
SOM: East Carolina University

Mark Plumb MD
SOM: West Virginia University

Daniel Shubert MD
SOM: Tufts University

Richard Wardell MD
SOM: University of Central Florida

Alex Conti MD
SOM: West Virginia University

Brian Grisez MD
SOM: West Virginia University

Danny Liechti MD
SOM: University of Illinois, Pears

Lunden Ryan MD
SOM: West Virginia University

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

Phillip Bostian MD
SOM: East Carolina University

Mark Plumb MD
SOM: West Virginia University

Daniel Shubert MD
SOM: Tufts University

Richard Wardell MD
SOM: University of Central Florida

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 Shackleford MD
SOM: University of Kentucky
The WVU Orthopaedic Research Laboratory facilities are located on the fifth floor of the Health Sciences Center adjacent to the main hospital campus. The 6,000-square-foot lab space contains state-of-the-art amenities capable of conducting basic science research with emphasis on tissue engineering, nanotechnology, cadaver and animal-based studies, and microsurgery. The research resident also participates in daily morning resident education conferences, performs monthly cadaver dissection for anatomy conference, assists with gross anatomy labs for first-year medical students, and occasionally provides lectures to the School of Medicine Orthopaedic Surgery Interest Group. The opportunities and experiences generated from this year are meant to serve as a foundation for a career as a research clinician.

**RESIDENCY PROGRAM**

**RESEARCH YEAR**

At West Virginia University, we have an Accreditation Council for Graduate Medical Education-accredited orthopaedic surgery research position available each year. This position is a six-year track, compared to our traditional five-year categorical track, and 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. The residents are provided with a start-up fund to design and execute their own 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, (Musculoskeletal Oncology) is the WVU Orthopaedics Research Laboratory director and advises lab residents during their research year. He, along with Matthew J. Dietz, MD, (Adult Reconstruction), Ming Pei, PhD, and Bingyun Li, PhD, conduct a majority of the Department’s basic science research with main focus on nanotechnology, immunotherapy, tissue regeneration, oncology, and infection (biofilm). The Department also has a very active clinical research focus with ongoing projects in every orthopaedic subspecialty.

**INTERESTED IN LEARNING MORE**

Please contact:

**Justin Vaida MD**

Email: Justin.Vaida@hsc.wvu.edu

Current Research Resident

**OR**

**Brock Lindsey MD**

Email: brock.lindsey@hsc.wvu.edu

Orthopaedics Research Laboratory Director

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**2016-2017 PRESENTATIONS AND AWARDS**

**Daniel Bravin MD 2018**

- Podium presentation: Bravin D, Hubbard D, Bravin L, France J, Bramar M. “A prospective randomized controlled trial comparing immediate weight bearing versus touch-down weight bearing in extra-articular distal femur fractures.”
  - Presented at: Orthopaedic Trauma Association Annual Meeting. Vancouver, BC, Canada. 2017
  - Recognized as one of the top papers presented at the 2017 OTA Annual Meeting by the Program Committee.

**Philip Boslant MD 2020**

- Podium presentation: TEG is predictive of blood transfusion and mortality in patients with traumatic pelvis fractures.
  - Presented at: Southern Orthopaedic Association Annual Meeting, Hilton Head, SC. 2017
- Resident Research Day, Morgantown, WV. 2017
- West Virginia Orthopaedic Society, Roanoke, WV
  - Best Resident Research Project, West Virginia Orthopaedic Society, 2017

- Poster presentation: “TXA in total hip arthroplasty: does surgical approach and route of administration matter?”
  - Presented at: Southern Orthopaedic Association Annual Meeting, Hilton Head, SC. 2017

**Brian Grisez MD 2021**

  - Presented at: Southern Orthopaedic Association Annual Meeting. Hilton Head, SC. 2017
- Resident presentation: Grisez BT, Bostian PA, Dietz MJ. “TXA in Total Hip Arthroplasty. Does surgical approach and route of administration matter?”
  - Presented at: Southern Orthopaedic Association Annual Meeting. Hilton Head, SC. 2017
- West Virginia Orthopaedic Society, Roanoke, WV
  - Poster presentation: Grisez BT, Bostian PA, Dietz MJ. “Surgical approach and BMI can influence effectiveness of TXA administration in total hip arthroplasty.”
  - Presented at: Van Liee. Morgantown, WV. 2017

**Jonathan Karnes MD 2019**

  - Presented at: AAOS Annual Meeting. San Diego, CA. 2017

**Kevin Shepet MD 2019**

  - Presented at: AAOS Annual Meeting. San Diego, CA. 2017
- American Academy of Orthopaedic Surgeons Annual Meeting, Charlotte, NC. 2017
- American Association of Hip and Knee Surgeons Annual Meeting, Kansas City, MO. 2017
- American Academy of Orthopaedic Surgeons Annual Meeting, Charlotte, NC. 2017

**Michael R. Wardell MD 2018**

- Podium presentation: McDonough E, Shepet, K, Bal G. “Immediate weight bearing on distal femur fractures, a prospective randomized trial.”
  - Presented at: West Virginia Orthopaedic Society, Roanoke, WV
  - Awarded second place for resident research presentations
In the West Virginia University Orthopaedic Research Laboratory, you will find research and educational opportunities in the areas of soft and hard tissue mechanics, tissue engineering, nanotechnology, adult reconstruction, spine, sports medicine, trauma, hand and upper extremity, and microsurgery.

The laboratory conducts in-vivo and in-vitro research in a modern environment. The laboratory faculty and staff are multidisciplinary, consisting of faculty from Statistics, Microbiology and Immunology, Pathology, and Orthopaedics. Graduate students from the University’s Health Sciences Center and College of Engineering and Mineral Resources 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 basic science research projects. The lab also provides facilities and encourages multidisciplinary musculoskeletal research between various departments in the Health Sciences Center.

**ARTHROSCOPY LAB**
The Orthopaedic Research Lab houses an arthroscopy wet lab. It has a Sterkman arthroscopic system that contains all the components required to conduct teaching labs with the residents or to conduct research. The lab has access to fresh cadaver tissue that is utilized for both teaching and research.

**CADAVERIC TEACHING LAB**
The Cadaveric Teaching Lab is equipped with a full array of surgical instrumentation, including power equipment, for anatomical dissection. Often the dissection is to practice procedures and surgical approaches, while at other times dissection is an integral part of research projects that involve specific cadaveric tissue. This particularly valuable asset is available to faculty and residents.

The cadaveric lab is now also equipped with state-of-the-art video conferencing equipment that makes interactive conferencing with surgeons state- and nation-wide easily accomplished. True HD cameras carry the signal to the Learning Center to allow the classroom participants to watch live. The video conferencing equipment is also capable of recording videos for use as instructional videos or as presentation media to view surgical techniques suitable for submission to national or international meetings.

**HISTOLOGY LAB**
This lab is fully equipped to process tissue samples for histology. Tissues can be processed, sectioned, and stained in this lab. A fume hood along with an embedding station and a microtome are available at all times for departmental use. A chemical cabinet with all chemicals necessary for histological procedures is housed in the same lab.

**IMAGE ANALYSIS CENTER**
The Orthopaedic Research Lab utilizes optical facilities located at the Image Analysis Center within the Department of Anatomy. The center supports transmitted and reflected light microscopy with Optimus image analysis software, inverted stage microscopy, confocal microscopy, and SEM. Image analysis and slide-making workstations are also available.

**MICROSURGERY LAB**
The Microsurgery Lab has two operating workstations; one is also equipped with state-of-the-art video conferencing equipment that makes interactive conferencing with surgeons state- and nation-wide easily accomplished. True HD cameras carry the signal to the Learning Center to allow the classroom participants to watch live. The video conferencing equipment is also capable of recording videos for use as instructional videos or as presentation media to view surgical techniques suitable for submission to national or international meetings.

**CELL CULTURE LAB**
The Cell Culture Lab is a fully equipped active lab with all the essential equipment for growing and maintaining cell cultures. Human cell lines, animal cell lines, and tissue-derived cells are used in experiments.

**MOLECULAR BIOLOGY LAB**
Routine molecular biological analyses and tests on tissue and cultured cell lines are performed in this laboratory. RNA extraction from cartilage and bone tissue and other cultured cells followed by real-time PCR are also carried out. This lab is also equipped to carry out protein extraction, gene-transfer research, and plasmid cloning.

**NANOTECHNOLOGY LAB**
The lab is outfitted with state-of-the-art robotic equipment for performing nanotechnological techniques. Some of the on-going projects include:

- Antibiotic loaded nanocoatings for infection prevention
- Local delivery of IL-12 for infection prevention
- Drug-loaded nanocoatings for rapid fracture healing
- Innovative biomimetic coatings
- Polypeptide nanoparticles and microcapsules as sustained drug delivery vehicles

**TESTING FACILITIES**
The following equipment is readily available at the laboratory:

- MTS Servo hydraulic testing machine; hip simulator fixture to simulate single-legged stance and stair climbing loads with joint and abductor loading; laser displacement device, optical markers, and PC data acquisition systems;
- Materials testing and evaluation laboratories.
2017 ACTIVE GRANTS: FACULTY

Shari Cui MD
- Title: Effects of telodendrims triage on efficiency and cost-effectiveness in spinal care
  - Source: NASS Young Investigator’s Award

Scott 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, multicenter study of instrumented posteriorlateral lumbar fusions (PLF) with OsteoAMP to evaluate long-term safety and efficacy in patients requiring 1-2-level instrumented PLF
  - Source: Bioventus, LLC
- Title: M6-C Artificial Cervical Disc IDE Pivotal Study
  - Source: West Virginia Clinical and Translational Science Institute

Matthew J. Dietz MD
- Title: Orthopaedic implant related infection in West Virginia
  - Source: West Virginia Clinical and Translational Science Institute
- Title: Electrolysis as an adjunct treatment in postoperative orthopaedic implant infections
  - Source: US DHHS – NIH – National Institute for Chronic Disease Prevention and Health Promotion

Brock Lindsey MD
- Title: A prospective, post-market, multi-center study of titanium acetabular shell
  - Source: Stryker
- Title: Comparative effectiveness of pulmonary embolism prevention after hip and knee arthroplasty
  - Source: Medical University of South Carolina

Bingyun Li PhD
- Title: Innovative implant nanocoatings with controlled dual drug release for bone regeneration
  - Source: US ODD – Secretary of Defense

Ming Pei MD, PhD
- Title: Dermalized matrix and cartilage regeneration
  - Source: US DHHS – NIH – National Institute for Arthritis, Musculoskeletal, and Skin Disease

Dina Jones PT, PhD
- Title: A randomized controlled trial of a community-based chronic pain self-management program in West Virginia
  - Source: CDC National Center for Injury Prevention and Control / West Virginia University Injury Control Research Center

2017 PUBLICATIONS: ORTHOPAEDIC SURGERY


Chen X, Li M, Yan J, Liu T, Tang G, Yang H, Pei M, He P. Alcohol induces cellular senescence and impairs osteogenic potential in bone marrow-derived mesenchymal stem cells. Alcohol Alcohol. 2017 May 1; 52 (3)


Pei M. Environmental preconditioning rejuvenates adult stem cells’ proliferation and chondrogenic potential. Biomaterials. 2017 Feb; 117: 10-23


Our growth and success of our clinical and research programs need investment for us to compete on the national stage. Please consider a gift to the Department of Orthopaedics for our WVU Foundation accounts. We utilize these funds for resident and faculty educational and research activities.

If you would like to designate a specific area for your gift, here are some suggestions:
1. Resident Research and Education
2. Faculty Research
3. Chair's Discretion

Credit card donations can be made directly online at give.wvu.edu/Orthopaedics.

If you choose to donate by check, please use the attached envelope for your convenience.

Any gift makes an impact. Thank you very much for your consideration.

Yours truly,

Sanford E. Emery, MD, MBA
Professor and Chairman,
Department of Orthopaedics,
West Virginia University
Director of Surgical Services,
WVU Medicine