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## Stephen M. Schaaf, M.D.

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### Current Position

- 2019 – Present      Assistant Professor  
Vanderbilt University Medical Center (VUMC)  
Department of Physical Medicine and Rehabilitation  
Nashville, TN
- 2020 – Present      Staff Physician  
VA Tennessee Valley Healthcare System  
Department of Physical Medicine and Rehabilitation  
Nashville, TN

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### Postgraduate Training

- 2018 – 2019      Sports Medicine Fellowship  
University of Pittsburgh Medical Center (UPMC)  
Department of Physical Medicine and Rehabilitation  
Pittsburgh, PA
- 2014 – 2018      Physical Medicine and Rehabilitation Residency  
University of Pittsburgh Medical Center  
Pittsburgh, PA

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### Education & Degrees Received

- 2010 – 2014      M.D.  
University of Toledo College of Medicine (UTCUM), Toledo, OH
- 2006 – 2009      B.S. Biology (Summa Cum Laude)  
The Ohio State University, Columbus, Ohio

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### Honors & Awards

- 2022      Best Oral Case Presentation, Southeast American College of Sports Medicine (ACSM)  
Annual Meeting

- 2020 Teacher of the Year Award, VUMC Department of PM&R  
 2017 UPMC Graduate Medical Education Patient Safety & Quality Improvement Award  
 2017 Musculoskeletal/Sports Medicine Award of Excellence, UPMC Department of PM&R  
 2017 American College of Sports Medicine (ACSM) Annual Meeting Clinician's Reception  
 Featured Abstract Selection  
 2011 Foundation of the Consortium of Multiple Sclerosis Centers Medical Research Scholar  
 Award

### Textbook

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1. Gonzalez-Fernandez M & **Schaaf S**. Handbook of Physical Medicine and Rehabilitation, New York: NY, Demos Medical Publishing. Copyright Springer Publishing Company, LLC, 2022.

### Textbook Chapters

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1. **Schaaf S** and Kennedy D. (2021) Lumbar Spine Injuries and Conditions. In Harrast M and Finnoff J (Ed.), *Sports Medicine, 3rd Edition*. (pp. 249-267, Chapter 20). Springer International Publishing.
2. **Schaaf S**, Hogan M, and Tenforde A. (2021) Achilles Tendon. In Onishi K, Fredericson M, and Dragoo J (Ed.), *Tendinopathy: From Basic Science to Clinical Management*. (pp. 251-263, Chapter 16). Springer International Publishing.
3. Schroeder A, Guthrie M, **Schaaf S**, and Onishi K. (2020) Regenerative Medicine for the Elbow. In G. Cooper, J. Herrera, J. Kirkbride (Ed.), *Regenerative Medicine for Spine and Joint Pain*. (pp. 181-199, Chapter 9). New York: Springer.

### Peer Reviewed Journal Articles

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1. Bryant D, Chase P, Shannon D, and **Schaaf S**. Role of Stem Cells for Knee Cartilage Injuries in Athletes. *Curr Phys Med Rehabil Rep* (2023). <https://doi.org/10.1007/s40141-023-00404-8>.
2. Wei R, Gardner J, **Schaaf S**, Hill B, and Bailowitz Z. Evaluation and Management of Carpal Instability. *Curr Phys Med Rehabil Rep* (2023). <https://doi.org/10.1007/s40141-023-00400-y>.
3. Swenson T, Roehmer C, Tran R, and **Schaaf S**. Longitudinal Cadaver-Based Training Curriculum for Musculoskeletal Ultrasound-Guided Procedures Among Physical Medicine and Rehabilitation Residents. *American Journal of Physical Medicine & Rehabilitation* 102(3):p e36-e39, March 2023. DOI: 10.1097/PHM.0000000000002113
4. Swenson T, Tran R, and **Schaaf S**. "Sonographic Features of a Medial Subtalar Coalition and Implications for Diagnosis and Treatment." *American Journal of Physical Medicine & Rehabilitation*: April 27, 2022 - Volume - Issue - 10.1097/PHM.0000000000002042. doi:10.1097/PHM.0000000000002042
5. Berlin E and **Schaaf S**. "Ultrasound Visualization of the Triple-Layer Sign of Lipohearthrosis: Fat, Plasma, and Blood." *American Journal of Physical Medicine & Rehabilitation*: September 2021 - Volume 100 - Issue 9 - p e131-e132 doi:10.1097/PHM.0000000000001648
6. **Schaaf S**, Huang W, Perera S, Conley Y, Belfer I, Jayabalan P, Tremont K, Coelho, P, Ernst S, Cortazzo M, Weiner D, Vo N, Kang J, and Sowa G. "Association of Protein and Genetic Biomarkers with Response to Lumbar Epidural Steroid Injections in Subjects

with Axial Low Back Pain.” American Journal of Physical Medicine & Rehabilitation. June 22, 2020. doi:10.1097/PHM.0000000000001514

7. **Schaaf S** and Fullerton B. “Review and Comments on Dr. Gastón Andrés Topol’s Article: “Chondrogenic Effect of Intra-articular Hypertonic-Dextrose (Prolotherapy) in Severe Knee Osteoarthritis,”” *Sport Rev J.* 2017; 2(3): 10-11, Feb. 2017.
8. **Schaaf S**, Pitt D, and Racke M. “What Happens When Natalizumab Therapy is Stopped?” *Expert Review of Neurotherapeutics.* 2011, Vol. 11, No. 9 (September), Pages 1247-1250. DOI:10.1586/ern.11.109

### Online Articles and Newsletters

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1. Hollabaugh W & Schaaf S. Elbow UCL Tear. American Medical Society of Sports Medicine (AMSSM) Library of Sports Ultrasound Pathology. April 11, 2023. [https://www.amssm.org/elbow\\_ucl\\_tear-csaus-1059.html?StartPos=0&Part=](https://www.amssm.org/elbow_ucl_tear-csaus-1059.html?StartPos=0&Part=)
2. Roehmer C & **Schaaf S**. “Epicondylitis (lateral) With and Without Nerve Entrapment.” PM&R Knowledge NOW. December 22, 2020. <https://now.aapmr.org/epicondylitis-lateral-with-and-without-nerve-entrapment-2/>
3. **Schaaf S**. “Elbow Pain in Little League Pitchers.” AAPM&R Conditions and Treatments for Patients. November 5, 2020. <https://www.aapmr.org/about-physiatry/conditions-treatments/musculoskeletal-medicine/elbow-pain-in-little-league-pitchers>
4. **Schaaf S**. “Vertebral Compression Fractures.” AAPM&R Conditions and Treatments for Patients. November 5, 2020. <https://www.aapmr.org/about-physiatry/conditions-treatments/musculoskeletal-medicine/vertebral-compression-fractures>
5. **Schaaf S**. “How to Avoid Running Injuries.” My Southern Health. April 17, 2020. <https://www.mysouthernhealth.com/how-to-avoid-running-injuries/>
6. **Schaaf S**. “Musculoskeletal Ultrasound Proves Its Utility and Versatility.” Discover from Vanderbilt University Medical Center. September 27, 2019. <https://discover.vumc.org/2019/09/musculoskeletal-ultrasound-proves-its-utility-and-versatility/>
7. Onishi K, Santa Barbara M, and **Schaaf S**. “Treating In-Season Athletes with Mid-Portion Achilles Tendinosis,” UPMC Rehab Grand Rounds Winter 2017.

### Peer Reviewed National Research Poster Presentations

\* Represents presenting author

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1. Bryant D\* and **Schaaf S**. Recurrence Rate of Ganglion Cysts of the Wrist and Hand After Ultrasound-Guided Aspiration in Pediatric and Young Adult Athletes: A Case Series. American Medical Society for Sports Medicine (AMSSM) Annual Meeting. Phoenix, AZ. April 2023.
2. Grusky A\*, Gardner J, Cash C, Rutherford M, **Schaaf S**, and Jain N. Genetic Predisposition to Glenohumeral Osteoarthritis: Case & Control Identification for Future Genome-Wide Association Study. AMSSM Annual Meeting. Phoenix, AZ. April 2023.

### Peer Reviewed National Case Oral Presentations

\* Represents presenting author

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1. Swenson T, Tran R\*, Susmarski A, and **Schaaf S**. Chronic Anterior Knee Pain in A Naval Officer. American College of Sports Medicine (ACSM) Annual Meeting. Denver, CO. June 2023.

2. Roehmer C\*, Swenson T, Susmarski A, and **Schaaf S**. Chronic Ulnar Wrist Pain in a Recreational Golfer. ACSM Annual Meeting. Denver, CO. June 2023.
3. Hollabaugh W\* and **Schaaf S**. An Uncommon Cause of Hand Swelling in a Gymnast. Southeast ACSM Annual Meeting. Greenville, SC. February 2022. Best Oral Case Presentation.
4. Chude C\* and **Schaaf S**. A Unique Cause of Sciatic in a Masters Martial Arts Athlete. ACSM Annual Meeting. Virtual. June 2021.
5. Schroeder A\*, **Schaaf S**, and Onishi K. Medial Lower Leg Pain in a Middle-Aged Triathlete. ACSM Annual Meeting. Orlando, FL. May 2019.
6. Neph A\*, **Schaaf S**, and Onishi K. Acute Proximal Posterior Thigh Pain in a Division 1 Women's Soccer Player. ACSM Annual Meeting. Orlando, FL. May 2019.
7. Smith J\*, **Schaaf S**, Washburn N, and Onishi K. Left Anterior Hip and Groin Pain-Rowing. ACSM Annual Meeting. Orlando, FL. May 2019.
8. **Schaaf S\*** and Stepanczuk B. Vertebral Artery Dissection in a Female Marathon Runner. ACSM Annual Meeting. Denver, CO. June 2017. Clinician's Reception Featured Abstract Selection.
9. Huang W, **Schaaf S**, Perera S, Conley Y, Ernst, S, Cortazzo M, Vo N, Kang J, and Sowa G\*. Associations of Neuropeptide Y Genotype and Circulating Levels with Response to Epidural Steroid Injection in Patients with Axial Low Back Pain. The International Society for the Study of the Lumbar Spine (ISSLS) Annual Meeting. Athens, Greece. May 2017.

### Peer Reviewed National Case Poster Presentations

\* Represents presenting author

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1. Hollabaugh W, Bowman E, and **Schaaf S**. Don't Forget to Look Back: An Uncommon Cause of Shoulder Pain. American Medical Society for Sports Medicine (AMSSM) Annual Meeting. Phoenix, AZ. April 2023.
  2. Bryant D and **Schaaf S**. Hand Pain and a Soft Tissue Mass in a Competitive Pediatric Gymnast. AMSSM Annual Meeting. Phoenix, AZ. April 2023.
  3. Chase P, Dovgan J, and **Schaaf S**. An Unusual Cause of Thigh Pain and Swelling in a Competitive Racquetball Player. AMSSM Annual Meeting. Phoenix, AZ. April 2023.
  4. Woods S, Gardner J, and **Schaaf S**. A Rare Cause of Thumb Pain and Dysfunction. Association of Academic Physiatrists (AAP) Annual Meeting. Anaheim, CA. February 2023.
  5. Bryant D, Massey L, and **Schaaf S**. An Atypical Baker's Cyst Referral. American Academy of Physical Medicine and Rehabilitation (AAPM&R) Annual Meeting. Baltimore, MD. October 2022.
  6. Gardner J, Chukwuma V, and **Schaaf S**. Atraumatic Wrist Swelling and Pain in the Setting of a Renal Transplant. AAPM&R Annual Meeting. Baltimore, MD. October 2022.
  7. Chase P and **Schaaf S**. Cubital Tunnel Syndrome Following a Traumatic Finger Amputation. AAPM&R Annual Meeting. Baltimore, MD. October 2022.
  8. Berlin E\*, Miller S, Frei B, and **Schaaf S**. Radial Tunnel Syndrome After Blood Draw. AAP Annual Meeting. New Orleans, LA. May 2022.
  9. Swenson T\*, Tran R, and **Schaaf S**. Ultrasound as a Tool for Diagnosis and Treatment of Subtalar Coalition. AAP Annual Meeting. New Orleans, LA. May 2022.

10. Swenson T\*, Sherwood D, Galbraith W, and **Schaaf S**. Carpal Tunnel Syndrome in a Transgender Patient on Testosterone Therapy. AAP Annual Meeting. New Orleans, LA. May 2022.
11. Swenson T\*, Roehmer C, and **Schaaf S**. Cadaver-Based Ultrasound Training for Musculoskeletal Anatomy and Ultrasound-Guided Procedures Among Senior Medical Students. AMSSM Annual Meeting. Austin, TX. April 2022.
12. Swenson T\* and **Schaaf S**. Dancing Without a Diagnosis; A Case of FCR Tendon Tenosynovitis. AMSSM Annual Meeting. Austin, TX. April 2022.
13. Song A\* and **Schaaf S**. The Use of Ultrasound in Diagnosis and Treatment of a Navicular-Cuneiform Ganglion Cyst Causing Deep Fibular Neuritis. AAPM&R Annual Meeting. Nashville, TN. November 2021.
14. Grusky A\* and **Schaaf S**. A Rare Cause of Bilateral Hip Pain in a Professional Disc Golf Athlete. AMSSM Annual Meeting. Virtual. April 2021.
15. Roehmer C\*, Berlin E, and **Schaaf S**. Ultrasound Visualization of the Triple Layer Sign of Lipohemarthrosis: Fat, Plasma, and Blood. AAP Annual Meeting. Virtual. February 2021.
16. Swenson T\*, Berlin E, and **Schaaf S**. Bilateral Osteonecrosis of the Femoral Heads in a Professional Disc Golf Athlete. AAP Annual Meeting. Virtual. February 2021.
17. Miller S\* and **Schaaf S**. Small and Large Intestine Diverticulitis with Perforation and Fistulization Presenting as Acute Groin, Low Back and Hip Pain to Spine Orthopedic Clinic. AAP Annual Meeting. Virtual. February 2021.
18. **Schaaf S\*** and Onishi K. Shin Whizzer. AMSSM Annual Meeting. Houston, TX. April 2019.
19. **Schaaf S\*** and Mares A. Ouch, What a Kick! AMSSM Annual Meeting. Orlando, FL. April 2018.
20. **Schaaf S\*** and Stepanczuk B. Vertebral Artery Dissection and Stroke in a Female Marathon Runner: A Case Report. AAPM&R Annual Meeting. Denver, CO. October 2017.
21. **Schaaf S\***, Huang W, Perera S, Cortazzo M, and Sowa G. Association of Clinical Characteristics and Response to Lumbar Epidural Steroid Injections in Subjects with Axial Low Back Pain. AAPM&R Annual Meeting. Denver, CO. October 2017.
22. **Schaaf S\*** and Rothenberg J. A Male High School Basketball Athlete with Chronic Left Knee Burning Pain: A Case Report. AMSSM Annual Meeting. San Diego, CA. May 2017.
23. **Schaaf S\***, Huang W, Conley Y, Ernst S, and Sowa G. Association of Genetic Single Nucleotide Polymorphisms and Response to Lumbar Epidural Steroid Injections in Subjects with Axial Low Back Pain: A Research Study. AAP Annual Meeting. Las Vegas, NV. February 2017.
24. **Schaaf S\*** and Stepanczuk B. A Severe Case of Anterograde Amnesia due to a Bilateral Hippocampi Stroke Caused by Septic Emboli: A Case Report. AAP Annual Meeting. Las Vegas, NV. February 2017.
25. **Schaaf S\*** and Stepanczuk B. Management of Back Pain in a Patient with Psoriatic Spondyloarthritis with Axial Involvement Following Surgical Fusion of the Thoracic Spine: A Case Report. AAP Annual Meeting. Sacramento, CA. February 2016.
26. Vento F\*, **Schaaf S**, Whaley J, and Sinewe M. Revolutionizing Medical Student Community Involvement: Development and Implementation of a Service Learning

Experience During Orientation. Association of American Medical Colleges (AAMC) Regional Meeting. San Diego, CA. April 2014.

27. **Schaaf S\***, Wittwer J, Schroeder A, Vento F, and Metting P. Pioneering Healthier Communities. AAMC Midwest Regional Meeting. St. Louis, MO. April 2013.
28. Vento F\*, **Schaaf S**, Boyers P, and Gold J. The University of Toledo Interprofessional Immersive Simulation Center (UT-IISC). AAMC Annual Meeting. San Francisco, CA. November 2012.

### **Committee Service**

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2023 – Present	Sports US Case Series, Chair, AMSSM
2022 – Present	STEP Ultrasound Skills Assessment Examiner, American Academy of Physical Medicine and Rehabilitation AAPM&R
2022 – Present	Didactic Curriculum Committee, VUMC Department of PM&R Residency Program
2021 – Present	Clinical Competency Committee, VUMC Department of PM&R Residency Program
2020 – Present	Sports Medicine Fellowship Interview and Selection Committee, VUMC Department of Orthopaedics
2019 – Present	Ultrasound Committee, AMSSM
2019 – 2022	Sports Medicine Milestones 2.0 Work Group, Accreditation Council for Graduate Medical Education
2019 – 2020	Residency Interview and Selection Committee, VUMC Department of PM&R
2016 – 2018	Accreditation, Review, and Quality Committee, UPMC
2015 – 2018	Patient Safety Committee, UPMC Department of PM&R
2011 – 2014	Association of American Medical Colleges Organization of Student Representatives, UTCOM

### **Activities/Service Experience**

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2021 – Present	Foundations of Health Care Delivery Preceptor, Vanderbilt School of Medicine
2021 – Present	Shade Tree Clinic, Vanderbilt School of Medicine
2020 – Present	Director of Musculoskeletal Ultrasound Education, VUMC Sports Medicine Fellowship
2020 – Present	Director of Musculoskeletal Ultrasound Education, VUMC Department of PM&R Residency Program
2020 – Present	Director of Sports Medicine Education, VUMC Department of PM&R Residency Program
2022	Osteoarthritis Electronic Medical Record Care Pathway, Clinical Lead, VUMC Department of Orthopaedics
2021	Mock Interviews for Medical Students, Vanderbilt School of Medicine
2020 – 2021	Sports Medicine Ultrasound Curriculum, Quality Improvement Project, VUMC Department of Orthopaedics, Sports Medicine Fellowship, Faculty Advisor
2020 – 2021	Improving Patient Education in Ultrasound-Guided Steroid Injections, Quality Improvement Project, Vanderbilt School of Medicine, Faculty Advisor

2018 – 2019	Sports Case Conference/Journal Club, UPMC PM&R Sports Medicine Fellowship
2016 – 2018	Community Sports Coverage Administrative Project, Founder, UPMC PM&R Department
2016 – 2018	UPMC PM&R Administrative Track
2016 – 2018	UPMC PM&R Residency Ultrasound Workshop
2016 – 2018	UPMC PM&R Sports Medicine Journal Club
2016 – 2018	Primary Care Moonlighting, Western Psychiatric Institute and Clinic of UPMC
2016 – 2018	University of Pittsburgh School of Medicine PM&R Club, Resident Coordinator
2015 – 2018	UPMC PM&R Residency Journal Club
2015 – 2018	Joint Injection Quality Improvement Project, Resident Co-Leader, UPMC PM&R Residency Program
2018	The Orthobiologic Institute (TOBI) Annual Workshop & Lab, Volunteer
2018	AMSSM Sports Ultrasound Pre-Conference Course, Volunteer
2017	Career Planning Night for the University of Pittsburgh School of Medicine Students, PM&R Resident Representative
2016 – 2017	Fall Prevention on a General Rehabilitation Unit Quality Improvement Project, Resident Co-Leader
2017	AAP Annual Meeting Medical Student Interest Group Roundtable Discussion
2016	UPMC Rehabilitation Institute Annual Wheelchair Wash & Tune-Up
2015 – 2016	Pain Medicine Keyword Quality Initiative Project, UPMC Department of Pain Medicine
2013 – 2014	UTCUM PM&R Medical Student Interest Group
2012 – 2014	Pioneering Healthier Communities Elective Course, Course Developer and Medical Student Director, UTCUM
2011 – 2014	Lifestyles, Eating, Activities and Attitudes Program, Medical Student Coordinator and Volunteer, UTCUM

### **National Teaching/Lectures**

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1. Customized Ultrasound Session. AMSSM Annual Meeting. Phoenix, Arizona. April 30, 2023.
2. Ankle - The Case for Ultrasound-Guided Procedures & Biologics. Vanderbilt Sports Medicine Lower Extremity Conference. February 17, 2023.
3. Musculoskeletal Ultrasound Resident Bootcamp. AAPM&R Annual Meeting. Baltimore, MD. October 21, 2022.
4. Musculoskeletal Ultrasound-Guided Injections, Are They Worth It? American Association of Neuromuscular & Electrodiagnostic Medicine Annual Meeting. Nashville, TN. September 24, 2022.
5. \*Fundamentals of Sports Ultrasound. 2020 Sports Ultrasound Summit Pittsburgh. Pittsburgh, PA. June 11, 2020.
6. \*Deep Gluteal Pain in Athletes. 2020 ACSM Annual Meeting. San Francisco, CA. May 30, 2020.
7. \*Introduction to Musculoskeletal Ultrasound Course. Scanning Faculty. 2020 ACSM Annual Meeting. San Francisco, CA. May 26, 2020.

8. \*Anterior Elbow Ultrasound Instructional Course Lecture. Scanning Faculty. 2020 AMSSM Annual Meeting. Atlanta, GA. April 27, 2020.
9. \*Shoulder Ultrasound Instructional Course Lecture. Scanning Faculty. 2020 AMSSM Annual Meeting. Atlanta, GA. April 25, 2020.
10. Achilles Tendinopathy: From Basic Tendon Concepts to Novel Treatments. AAP Virtual Didactic Webinar. April 22, 2020.
11. Fundamental Ultrasound of the Lower Extremity. Skills Lab Table Trainer. 2019 Annual AAPM&R Assembly. November 15, 2019.
12. Rehab's 4<sup>th</sup> Annual Musculoskeletal Ultrasound Workshop. Skills Lab Table Trainer. University of Hawaii John A Burns School of Medicine. Honolulu, HI. December 8, 2018.

### **Local Teaching/Lectures**

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1. I Spy a Musculoskeletal Condition: How Ultrasound Can Help Establish a Diagnosis & Perform Targeted Treatment. Rheumatology Grand Rounds. VUMC Department of Rheumatology, April 1, 2023.
2. Hip Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. April 3, 2023.
3. Ankle & Foot Conditions. Resident Didactics. VUMC Department of PM&R. March 28, 2023
4. Knee Conditions. Resident Didactics. VUMC Department of PM&R. March 14, 2023.
5. Hip Conditions. Resident Didactics. VUMC Department of PM&R. February 14, 2023.
6. Wrist & Hand Conditions. Resident Didactics. VUMC Department of PM&R. January 24, 2023.
7. Sports Medicine Journal Club. VUMC Department of PM&R. January 17, 2023.
8. Ultrasound for Upper Extremity Nerves. VUMC Department of Plastic Surgery. January 13, 2023.
9. Shoulder Conditions. Resident Didactics. VUMC Department of PM&R. January 10, 2023.
10. Nerve Hydrodissection. Interventional Consensus Conference. VUMC Department of Orthopaedics, Division of Sports Medicine. November 28, 2022.
11. Elbow, Wrist, & Hand Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. November 7, 2022.
12. Shoulder Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. October 24, 2022.
13. Hamstring and Quadriceps Injuries. Fellows Lecture. VUMC Department of Orthopaedics, Division of Sports Medicine. September 7, 2022.
14. Basic Principles of Musculoskeletal Ultrasound. Resident Didactics. VUMC Department of PM&R. August 29, 2022.
15. Musculoskeletal Physical Exam Workshop. Resident Didactics. VUMC Department of PM&R. August 29, 2022.
16. Nerve Injuries in Athletes. Fellows Lecture. VUMC Department of Orthopaedics, Division of Sports Medicine. August 17, 2022.
17. Ankle and Foot Anatomy, Physical Exam, and Imaging. Fellowship Didactics. VUMC Sports Medicine Department. July 14, 2022.
18. Basic Principles of Sports Medicine Ultrasound. Fellowship Didactics. VUMC Sports Medicine Department. July 11, 2022.



19. Ankle & Foot Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. May 12, 2022.
20. Knee Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. April 21, 2022.
21. Foot Conditions. Resident Didactics. VUMC Department of PM&R. March 31, 2022.
22. Ankle Conditions. Resident Didactics. VUMC Department of PM&R. March 29, 2022.
23. Knee Conditions Part 2. Resident Didactics. VUMC Department of PM&R. March 22, 2022.
24. Hip Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. March 17, 2022.
25. Knee Conditions Part 1. Resident Didactics. VUMC Department of PM&R. March 8, 2022.
26. Hip Conditions Part 2. Resident Didactics. VUMC Department of PM&R. March 3, 2022.
27. Hip Conditions Part 1. Resident Didactics. VUMC Department of PM&R. February 24, 2022.
28. Hand Conditions. Resident Didactics. VUMC Department of PM&R. February 22, 2022.
29. Wrist Conditions. Resident Didactics. VUMC Department of PM&R. February 17, 2022.
30. A Bit Inside – *Ultrasound evaluation of the shoulder and elbow*. Vanderbilt Sports Medicine Baseball Conference. February 11, 2022.
31. Elbow Conditions. Resident Didactics. VUMC Department of PM&R. January 20, 2022.
32. Shoulder Conditions Part 2. Resident Didactics. VUMC Department of PM&R. January 11, 2022.
33. Shoulder Conditions Part 1. Resident Didactics. VUMC Department of PM&R. January 6, 2022.
34. Ultrasound for Upper Extremity Nerves. VUMC Department of Plastic Surgery. December 10, 2021.
35. Elbow, Wrist, & Hand Diagnostic and Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. October 21, 2021.
36. Shoulder Diagnostic and Interventional Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. September 16, 2021.
37. Hamstring and Quadriceps Injuries. Fellows Lecture. VUMC Department of Orthopaedics, Division of Sports Medicine. September 8, 2021.
38. Musculoskeletal Physical Exam Workshop. Resident Didactics. VUMC Department of PM&R. July 29, 2021.
39. Basic Principles of Musculoskeletal Ultrasound. Resident Didactics. VUMC Department of PM&R. July 29, 2021.
40. Upper Extremity Nerve Injuries in Athletes. Fellows Lecture. VUMC Department of Orthopaedics, Division of Sports Medicine. July 28, 2021.
41. Spine Conference. VUMC Department of PM&R. July 14, 2021.
42. Hip Anatomy and Physical Exam. Fellowship Didactics. VUMC Sports Medicine Department. July 6, 2021.
43. Ankle and Foot Anatomy, Physical Exam, and Imaging. Fellowship Didactics. VUMC Sports Medicine Department. July 5, 2021.
44. Basic Principles of Sports Medicine Ultrasound. Fellowship Didactics. VUMC Sports Medicine Department. July 5, 2021.

45. Musculoskeletal Ultrasound-Guided Procedures Workshop. Resident Didactics. VUMC Department of PM&R. May 13, 2021.
46. Running Injuries. Resident Didactics. UPMC Department of PM&R. May 5, 2021.
47. Tendinopathies: From Basic Tendon Concepts to Novel Treatments. STAR Physical Therapy. Mount Juliet, TN. April 21, 2021.
48. Hip Musculoskeletal Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. April 8, 2021.
49. Sports Medicine Lecture. Resident Didactics. VUMC Department of PM&R. March 25, 2021.
50. Foot Injuries. Resident Didactics. VUMC Department of PM&R. March 16, 2021.
51. Elbow, Wrist, & Hand Musculoskeletal Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. March 11, 2021.
52. Knee Injuries Part 2. Resident Didactics. VUMC Department of PM&R. March 4, 2021.
53. Knee Injuries Part 1. Resident Didactics. VUMC Department of PM&R. March 2, 2021.
54. Wrist & Hand Injuries Part 2. Resident Didactics. VUMC Department of PM&R. February 25, 2021.
55. Wrist & Hand Injuries Part 1. Resident Didactics. VUMC Department of PM&R. February 23, 2021.
56. Journal Club: "Coory JA, Parr AF, Wilkinson MP, Gupta A. Efficacy of suprascapular nerve block compared with subacromial injection: a randomized controlled trial in patients with rotator cuff tears. J Shoulder Elbow Surg. 2019 Mar;28(3):430-436. doi: 10.1016/j.jse.2018.11.051." Resident Didactics. VUMC Department of PM&R. February 4, 2021.
57. Ankle and Foot Anatomy and Physical Exam. Resident Didactics. VUMC Department of PM&R. January 21, 2021.
58. Knee Anatomy and Physical Exam. Resident Didactics. VUMC Department of PM&R. January 21, 2021.
59. Pelvis and Hip Anatomy and Physical Exam. Resident Didactics. VUMC Department of PM&R. January 19, 2021.
60. Wrist and Hand Anatomy and Physical Exam. Resident Didactics. VUMC Department of PM&R. January 7, 2021.
61. Elbow Anatomy and Physical Exam. Resident Didactics. VUMC Department of PM&R. January 7, 2021.
62. Shoulder Anatomy and Physical Exam. Resident Didactics. VUMC Department of PM&R. January 5, 2021.
63. Knee, Ankle, & Foot Musculoskeletal Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. October 8, 2020.
64. Hamstring and Quadriceps Injuries. Fellows Lecture. VUMC Department of Orthopaedics, Division of Sports Medicine. September 9, 2020.
65. Utilization of Ultrasound for Treatment of Musculoskeletal Conditions. STAR Physical Therapy. Mount Juliet, TN. August 19, 2020.
66. Shoulder Musculoskeletal Ultrasound Workshop. Resident Didactics. VUMC Department of PM&R. August 13, 2020.
67. Lower Extremity Nerve Injuries in Athletes. Fellows Lecture. VUMC Department of Orthopaedics, Division of Sports Medicine. July 29, 2020.
68. Basic Principles of Musculoskeletal Ultrasound. Resident Didactics. VUMC Department of PM&R. July 10, 2020.

69. Ankle and Foot Anatomy, Physical Exam, and Imaging. Fellowship Didactics. VUMC Sports Medicine Department. July 7, 2020.
70. Basic Principles of Sports Medicine Ultrasound. Fellowship Didactics. VUMC Sports Medicine Department. July 6, 2020.
71. Spine Conference. VUMC Department of PM&R. July 1, 2020.
72. Sports Medicine PM&R Board Review. Resident Didactics. VUMC Department of PM&R. June 23, 2020.
73. Sports Medicine Lecture. Resident Didactics. VUMC Department of PM&R. June 9, 2020.
74. Utilization of Ultrasound for Treatment of Musculoskeletal Conditions. Cool Springs Physical Therapy Clinic. Department of Rehabilitation Services. VUMC. June 3, 2020.
75. Sports Medicine Lecture. Resident Didactics. VUMC Department of PM&R. May 28, 2020.
76. Sports Medicine Lecture. Resident Didactics. VUMC Department of PM&R. May 12, 2020.
77. Sports Medicine Lecture. Resident Didactics. VUMC Department of PM&R. April 23, 2020.
78. Sports Medicine Lecture. Resident Didactics. VUMC Department of PM&R. April 9, 2020.
79. Innovative Diagnostic and Interventional Applications of Musculoskeletal Ultrasound. Rehab Services Seminar Series. Department of Rehabilitation Services. VUMC. January 21, 2020.
80. PM&R Musculoskeletal Services. Dayani Center for Health & Wellness. VUMC. November 5, 2019.
81. Five Minute Musculoskeletal Examination – Shoulder & Knee. Division of General Internal Medicine & Public Health Grand Rounds. VUMC. October 23, 2019.
82. Diagnostic Ultrasound Scan – Ankle & Foot. Resident Didactics. UPMC Department of PM&R. June 19, 2019.
83. Ultrasound in Sports Medicine. UPMC Sports Medicine Conference. May 15, 2019.
84. Sports Journal Club Review: Parisien et al. Statistical Fragility and the Role of P Values in the Sports Medicine Literature. *J Am Acad Orthop Surg.* 2019;27(7):e324-e9. UPMC PM&R Sports Medicine Journal Club. May 7, 2019.
85. Flank Pain in a Golfer. UPMC PM&R Sports Medicine Case Conference. April 23, 2019.
86. Diagnostic Ultrasound Scan – Wrist/Hand. UPMC PM&R Residency Ultrasound Workshop. April 2, 2019.
87. Sports Journal Club Review: van Dyk et al. Including the Nordic hamstring exercise in injury prevention programmes halves the rate of hamstring injuries: a systematic review and meta-analysis of 8459 athletes. *Br J Sports Med.* 2019. UPMC PM&R Sports Medicine Journal Club. March 12, 2019.
88. Sports Journal Club Review: Vancolen et al. Return to Sport After Ankle Syndesmotic Injury: A Systematic Review. *Sports Health.* 2019;11(2):116-22. UPMC PM&R Sports Medicine Journal Club. March 12, 2019.
89. Diagnostic Ultrasound Scan – Posterior Thigh. UPMC PM&R Residency Ultrasound Workshop. March 11, 2019.
90. Sports Journal Club Review: Gollwitzer et al. Clinically relevant effectiveness of focused extracorporeal shock wave therapy in the treatment of chronic plantar fasciitis: a

- randomized, controlled multicenter study. *J Bone Joint Surg Am.* 2015;97(9):701-8. UPMC Sports Medicine Fellowship Didactics. March 6, 2019.
91. Hip Ultrasound. St. Margaret's Musculoskeletal Symposium on the Hip. February 21, 2019.
  92. Sports Journal Club Review: Li et al. Effect of extracorporeal shock-wave therapy for treating patients with chronic rotator cuff tendonitis. *Medicine (Baltimore).* 2017;96(35):e7940. UPMC PM&R Sports Medicine Journal Club. February 12, 2019.
  93. Diagnostic Ultrasound Scan – Lateral and Posterior Hip. UPMC PM&R Residency Ultrasound Workshop. February 5, 2019.
  94. A Burning Sensation. UPMC PM&R Sports Medicine Case Conference. January 29, 2019.
  95. Shocking Cause of Shoulder Pain. UPMC PM&R Sports Medicine Case Conference. January 29, 2019.
  96. Non-Operative Management of Low Back Pain. UPMC Sports Medicine Conference. January 23, 2019.
  97. Sports Journal Club Review: Fitzpatrick et al. The Effectiveness of Platelet-Rich Plasma Injections in Gluteal Tendinopathy: A Randomized, Double-Blind Controlled Trial Comparing a Single Platelet-Rich Plasma Injection With a Single Corticosteroid Injection. *Am J Sports Med.* 2018;46(4):933-9. UPMC Sports Medicine Fellowship Didactics. January 23, 2019.
  98. Ultrasound in Sports Medicine. Vanderbilt University Medical Center Department of PM&R Grand Rounds. January 17, 2019.
  99. Musculoskeletal Ultrasound. University of Pittsburgh School of Medicine. Ultrasound in Medicine Interest Group. January 14, 2019.
  100. Diagnostic Ultrasound Scan – Anterior & Medial Hip. UPMC PM&R Residency Ultrasound Workshop. January 8, 2019.
  101. Sports Journal Club Review: van de Graaf et al. Effect of Early Surgery vs Physical Therapy on Knee Function Among Patients With Nonobstructive Meniscal Tears: The ESCAPE Randomized Clinical Trial. *JAMA.* 2018;320(13):1328-37. UPMC PM&R Sports Medicine Journal Club. January 8, 2019.
  102. Sports Journal Club Review: Boden et al. Platelet-rich plasma versus Tenex in the treatment of medial and lateral epicondylitis. *J Shoulder Elbow Surg.* 2019;28(1):112-9. UPMC PM&R Sports Medicine Journal Club. January 8, 2019.
  103. Diagnostic Ultrasound Scan – Elbow. UPMC PM&R Residency Ultrasound Workshop. December 4, 2018.
  104. Elite Feet. UPMC PM&R Sports Medicine Case Conference. November 27, 2018.
  105. Sports Journal Club Review: Bodendorfer et al. Outcomes After Operative and Nonoperative Treatment of Proximal Hamstring Avulsions: A Systematic Review and Meta-analysis. *Am J Sports Med.* 2018;46(11):2798-808. UPMC PM&R Sports Medicine Journal Club. November 13, 2018.
  106. Sports Journal Club Review: Hotfiel et al. Contrast-Enhanced Ultrasound as a New Investigative Tool in Diagnostic Imaging of Muscle Injuries-A Pilot Study Evaluating Conventional Ultrasound, CEUS, and Findings in MRI. *Clin J Sport Med.* 2018;28(4):332-8. UPMC PM&R Sports Medicine Journal Club. November 13, 2018.
  107. Diagnostic Ultrasound Scan – Knee. UPMC PM&R Residency Ultrasound Workshop. November 6, 2018.

108. Posterolateral Corner Knee Injury – Wrestling. UPMC PM&R Sports Medicine Case Conference. October 23, 2018.
109. Diagnostic Ultrasound Scan – Shoulder. UPMC PM&R Residency Ultrasound Workshop. October 16, 2018.
110. Sports Journal Club Review: Mansell et al. Arthroscopic Surgery or Physical Therapy for Patients with Femoroacetabular Impingement Syndrome: A Randomized Controlled Trial With 2-Year Follow-Up. *Am J Sports Med.* 2018;46(6):1306-14. UPMC PM&R Sports Medicine Journal Club. October 9, 2018.
111. Sports Journal Club Review: Winters et al. Medial Tibial Stress Syndrome Can Be Diagnosed Reliably Using History and Physical Examination. *Br J Sports Med.* 2018;52(19):1267-72. UPMC PM&R Sports Medicine Journal Club. October 9, 2018.
112. Ultrasound Guided Intraarticular Knee Injection on a Cadaveric Model. Resident Didactics. UPMC Department of PM&R. June 20, 2018.
113. Curriculum Vitae and Fellowship Application Workshop. Resident Didactics. UPMC Department of PM&R. May 9, 2018.
114. Shoulder Physical Exam. Musculoskeletal Physical Exam Workshop. University of Pittsburgh School of Medicine. December 15, 2017.
115. Root Cause Analysis Morbidity and Mortality Conference: Case Presentation. Resident Didactics. UPMC Department of PM&R. November 29, 2017.
116. Joint Injection Quality Improvement Project: “How to Perform a Palpation Guided Shoulder Injection,” Resident Didactics. UPMC Department of PM&R. November 1, 2017.
117. Sports Journal Club Review: Boesen et al. Effect of High-Volume Injection, Platelet-Rich Plasma, and Sham Treatment in Chronic Midportion Achilles Tendinopathy: A Randomized Double-Blinded Prospective Study. *Am J Sports Med.* 2017;45(9):2034-43. UPMC PM&R Sports Medicine Journal Club. October 10, 2017.
118. Sports Radiology Case Series Review. Resident Didactics. UPMC Department of PM&R. September 27, 2017.
119. Sports Medicine Board Review. Resident Didactics. UPMC Department of PM&R. September 6, 2017.
120. Sacroiliac Joint Physical Exam. Resident Didactics. UPMC Department of PM&R. August 2, 2017.
121. Ankle & Foot Anatomy. Resident Didactics. UPMC Department of PM&R. June 21, 2017.
122. Sudden Cardiac Death in Athletes. UPMC PM&R Department Resident Grand Rounds. Pittsburgh, PA. April 2017.
123. Joint Injection Quality Improvement Project: “How to Perform a Palpation Guided Intra-articular Knee Injection,” Resident Didactics. UPMC Department of PM&R. March 8, 2017.
124. Joint Injection Quality Improvement Project: “Informed Consent,” Resident Didactics. UPMC Department of PM&R. March 8, 2017.
125. Sports Journal Club Review: Topol et al. Chondrogenic Effect of Intra-articular Hypertonic-Dextrose (Prolotherapy) in Severe Knee Osteoarthritis. *Sport Rev J.* 2017; 2(3): 10-11, Feb. 2017. UPMC PM&R Sports Medicine Journal Club. February 21, 2017.
126. Fall Prevention on a General Rehabilitation Unit Quality Improvement Project, UPMC St. Margaret. January 12, 2017.

127. Shoulder Anatomy. UPMC PM&R Residency Ultrasound Workshop. July 26, 2016.
128. Knee Anatomy. Resident Didactics. UPMC Department of PM&R. June 15, 2016.
129. Spinal Orthoses. UPMC Mercy Resident Education. UPMC Department of PM&R. April 25, 2016.
130. Patient Safety Conference: Communicating with a Difficult Patient. Resident Didactics. UPMC Department of PM&R. April 6, 2016.
131. Traumatic Brain Injury Board Review. Resident Didactics. UPMC Department of PM&R. January 13, 2016
132. Diagnosis and Management of Delirium. UPMC Montefiore Unit Staff Education. UPMC Department of PM&R. January 13, 2016
133. Journal Club Review: Hoyer et al. Association of Impaired Functional Status at Hospital Discharge and Subsequent Rehospitalization. J. Hosp. Med. Journal of Hospital Medicine (2014): 277-82. Resident Didactics. UPMC Department of PM&R. October 14, 2015.
134. Ankle and Foot Amputations. UPMC Mercy Resident Education. UPMC Department of PM&R. July 24, 2015.
135. Journal Club Review: Kushner et al. Evaluating Use of the Siebens Domain Management Model During Inpatient Rehabilitation to Increase Functional Independence and Discharge Rate to Home in Stroke Patients. PM&R, Volume 7, Issue 4, 354 – 364. UPMC PM&R Residency Journal Club. May 20, 2015.

### **Sports Coverage**

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2020 - Present Green Hill High School (Mount Juliet, TN), Team Physician

2019 Pittsburgh Marathon, Finish Line Medical Tent

2019 Atlantic 10 Conference Women's Basketball Championship Tournament

2019 Duquesne Women's Lacrosse (NCAA Division 1), Team Physician

2018 Duquesne Women's Basketball (NCAA Division 1), Team Physician

2018 Duquesne Women's Soccer (NCAA Division 1), Team Physician

2018 Duquesne Women's Volleyball (NCAA Division 1), Team Physician

2018 West Mifflin High School Football (Division 4A), Team Physician

2018 Westminster Football (NCAA Division 3), Home Game Sideline Coverage

2018 EQT Pittsburgh 10 Miler, Finish Line Medical Tent

2018 Pittsburgh Penguins vs. Buffalo Sabres Pre-Season NHL Game

2018 Pittsburgh Penguins vs. Detroit Red Wings Pre-Season NHL Game

2018 Duquesne Fall and Winter Sports Pre-Participation Physical Exams

2018 Westminster Fall and Winter Sports Pre-Participation Physical Exams

2018 Pittsburgh Marathon, Finish Line Medical Tent

2018 Shamrock Shuffle Half Marathon, Medical Director

2018 Duquesne vs. St. Bonaventure Women's Lacrosse Game (NCAA Division 1)

2018 Duquesne vs. Niagara Women's Lacrosse Game (NCAA Division 1)

2017 Mighty Moraine Man Olympic Triathlon, Medical Director

2017 Duquesne vs. Akron Women's Basketball Game (NCAA Division 1)

2017 Pittsburgh Penguins vs. Buffalo Sabres Pre-Season NHL Game

2017 Pittsburgh Penguins vs. Detroit Red Wings Pre-Season NHL Game

2017 Pittsburgh Tough Mudder, Finish Line Medical Tent

2017 Pittsburgh City High School Football League

2017	Duquesne Fall Sports Training Room
2017	California University of Pennsylvania Football Pre-Participation Physical Exams
2017	Pittsburgh Marathon, Hand Cycle Assistant Team
2017	Duquesne vs. Saint Joseph's NCAA Division 1 Women's Lacrosse Game
2017	Sacramento State vs. NCAA Division 1 Men's Basketball Game
2016	Pittsburgh City High School Football League
2016	Mighty Moraine Man Olympic Triathlon, Finish Line Medical Tent
2016	Mighty Moraine Man Half Iron Man, Finish Line Medical Tent
2016	Duquesne University Winter and Spring Sports Pre-Participation Physical Exams
2016	California University of Pennsylvania Fall and Winter Sports Pre-Participation Physical Exams
2016	Pittsburgh Triathlon, Field Aid Station
2016	Pittsburgh Marathon, Field Aid Station
2016	Western Pennsylvania Interscholastic Athletic League AA Wrestling Tournament
2015	Pittsburgh City High School Football League

### **Professional Memberships**

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2016 – Present	Member, American Medical Society for Sports Medicine
2016 – Present	Member, American College of Sports Medicine
2015 – Present	Member, Association of Academic Physiatrists
2015 – Present	Member, American Academy of Physical Medicine and Rehabilitation

### **Certifications**

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2014 – Present	Basic Life Support & Advanced Cardiac Life Support
2019 – Present	American Board of Physical Medicine and Rehabilitation
2019 – Present	American Board of Physical Medicine and Rehabilitation, Sports Medicine Subspecialty
2021 – Present	Registered in Musculoskeletal (RMSK) Sonography (ID# 260981)

### **Licensure**

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2016 – 2020	Pennsylvania Medical License (MD458658)
2019 – 2024	Tennessee Medical License (59437)