

CURRICULUM VITAE (CV)

PER GUNNAR BROLINSON, DO

***Vice President for Research
Professor of Family Medicine
Emeritus Director, Primary Care Sports Medicine Fellowship***

CONTACT INFORMATION

Edward Via College of Osteopathic Medicine
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Jamerson Center, Room 150
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EDUCATION

College	University of Missouri, BA, Biology, 1978
Pre-Doctoral Training	Texas College of Osteopathic Medicine, Institute for Human Fitness, Pre-Doctoral Clinical Fellowship in Sports and Preventative Medicine, Summer 1981 & 1982
Graduate School	Kirksville College of Osteopathic Medicine, DO, 1983
Postdoctoral Training	Parkview Hospital, Toledo, OH, Traditional Internship, Family Medicine, 1983-1984
	Edward Via College of Osteopathic Medicine, Faculty Development Fellowship, Clinical Research; Mentor, Al Pheley, PhD; 2003-2005

LICENSES AND CERTIFICATES

1984 –	Diplomat of the National Board of Medical Examiners
1984 – 2003	State of Ohio, License #3731 (inactive)
1991 –	Board Certified, American College of Osteopathic Family Physicians (Lifetime

- Certification)
 1995 – Board Certified, Primary Care Sports Medicine (Recertified January 2016)
 2002 – Commonwealth of Virginia, License #0102201326 (active)
 2010 – 2018 State of West Virginia, License #2488 (inactive)
 2011 – State of North Carolina, Certificate #174776 (active)

ACADEMIC APPOINTMENTS

- 1985 – 2002 Adjunct Clinical Professor of Family Practice, Ohio University College of Osteopathic Medicine, Athens, OH
 1990 – 2002 Adjunct Professor, College of Health Promotion and Human Services, University of Toledo, Toledo, OH
 2002 – 2009 Associate Professor of Family Practice and Discipline Chair of Sports Medicine, Edward Via College of Osteopathic Medicine, Blacksburg, VA
 2005 – Adjunct Professor, Mechanical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA
 2005 – 2019 Director of Primary Care Sports Medicine Fellowship, Virginia Tech and Edward Via College of Osteopathic Medicine, Blacksburg, VA
 2007 – 2014 Associate Dean for Clinical Research, Edward Via College of Osteopathic Medicine, Blacksburg, VA
 2009 – 2019 Discipline Chair of Sports Medicine, Edward Via College of Osteopathic Medicine, Blacksburg, VA
 2009 – Professor of Family Medicine, Edward Via College of Osteopathic Medicine, Blacksburg, VA
 2009 – Medical Director, Edward Via College of Osteopathic Medicine, Blacksburg, VA
 2014 – 2023 Vice Provost for Research, Edward Via College of Osteopathic Medicine (four-campus system)
 2019 – Emeritus Director, Primary Care Sports Medicine Fellowship, Virginia Tech and Edward Via College of Osteopathic Medicine, Blacksburg, VA
 2023 – Vice President for Research, Edward Via College of Osteopathic Medicine (four-campus system)

COMMITTEES AND LEADERSHIP

- 1986 – 1989 Member, Board of Directors, Parkview Hospital, Toledo, OH
 1988 – 1990 Member, Compensation Committee, HMO Health Ohio, Toledo, OH
 1990 – 1992 Member, Quality Assessment and Physician Reimbursement Committee, Paramount Health Care, Toledo, OH
 1990 – 2000 Member, Osteopathic Education Committee, St. Vincent Medical Center, Toledo, OH
 1992 – 1994 Member, Pharmacy and Therapeutics Committee, Toledo Health Plan, Toledo, OH
 1996 – 1998 Member, Institutional Review Board, The Toledo Hospital, Toledo, OH
 1996 – 2002 Member, Board of Directors, Health Enhancement Research Organization
 1998 – 2002 Co-Chairman, Institutional Review Board, The Toledo Hospital, Toledo, OH
 2000 – 2002 Ex-officio Member, Board of Directors, Health, Education, Research Corporation, ProMedica Health System

- 2003 – 2006 Member, Interdisciplinary Research Committee, Edward Via College of Osteopathic Medicine
- 2007 – 2014 Member, Institutional Review Board and Human Subjects Committee, Edward Via College of Osteopathic Medicine
- 2007- 2017 Board Member, Center for Innovation in Construction Safety & Health Research, Virginia Tech, Blacksburg, VA
- 2007 – 2017 Member, Graduate Medical Education Committee – Sports Medicine Fellowship, Montgomery County Regional Hospital, Christiansburg, VA
- 2007 – Member, Continuing Medical Education Committee, Edward Via College of Osteopathic Medicine
- 2007 – Member, President’s and Provost’s Council of Officers, Edward Via College of Osteopathic Medicine
- 2007 – 2022 Member, Curriculum and Assessment Oversight Committee, Edward Via College of Osteopathic Medicine
- 2007 – 2022 Member, Faculty Development Committee, Edward Via College of Osteopathic Medicine
- 2007 – 2022 Member, Institutional Environment and Biosafety Committee, Edward Via College of Osteopathic Medicine
- 2007 – 2024 Member, Appointment, Promotion, and Tenure Committee, Edward Via College of Osteopathic Medicine
- 2008 – 2015 Co-Chairman, Institutional Review Board, Edward Via College of Osteopathic Medicine, Blacksburg, VA
- 2009 – Member, Virginia Tech Performance and Nutrition Committee
- 2009 – Member, Virginia Tech Substance Abuse Committee
- 2015 – Chairman, Institutional Review Board, Edward Via College of Osteopathic Medicine, Blacksburg, VA

CLINICAL TEACHING EXPERIENCE

- 1984 – 2002 Adjunct Clinical Professor of Family Practice, Ohio University College of Osteopathic Medicine, Ohio University, Athens, OH
- 1986 – 2002 Clinical Preceptor for Family Practice and Sports Medicine, W.W. Knight Family Practice Residency, The Toledo Hospital, Toledo, OH
- 1988 – 2000 Summer Preceptor, Family Practice Department, Medical College of Ohio, Toledo, OH
- 1990 – 2002 Adjunct Professor, College of Health Promotion and Human Services, University of Toledo, Toledo, OH
- 1993 – 2002 Co-Medical Director, Primary Care Sports Medicine Fellowship, The Toledo Hospital and ProMedica Health System, Toledo, OH
- 1993 – 2002 Clinical Assistant Professor, Department of Orthopedic Surgery, School of Medicine, Medical College of Ohio, Toledo, OH
- 2002 – 2004 Interim Director of Osteopathic Family Practice Residency Program, Carilion Health System, Roanoke, VA
- 2002 – 2009 Associate Professor, Family Practice and Sports Medicine, Edward Via College of Osteopathic Medicine, Blacksburg, VA

- 2005 – 2019 Medical Director, Primary Care Sports Medicine Fellowship, Edward Via College of Osteopathic Medicine and Virginia Tech, Blacksburg, VA (38 Fellows, 12 months per year)
- 2009 – Professor, Family Practice and Sports Medicine, Edward Via College of Osteopathic Medicine, Blacksburg, VA
- 2019 – Medical Director – Emeritus, Primary Care Sports Medicine Fellowship Edward Via College of Osteopathic Medicine and Virginia Tech, Blacksburg, VA (11 Fellows, 12 months per year)

TEACHING EXPERIENCE

Medical School

- 2011 – Sports Medicine Curriculum, Primary Instructor
- 2022 – Required 3rd Year Research Rotation Curriculum, Primary Instructor
- Courses Taught as Supporting/Secondary Faculty:
- Principles of Primary Care
 - Clinical Case Correlations
 - Osteopathic Manipulative Medicine
 - Clinical Athletic Training Seminars
 - Graduate Mechanical Engineering Seminars

Graduate Medical Education or Other Professional School

- Clinical Training and Didactics, Primary Care Sports Medicine Fellowship (as Supporting/Secondary Faculty)
- Clinical Research Seminars, VCOM Master of Arts in Biomedical Sciences Program (MABS) (as Supporting/Secondary Faculty)

Continuing Medical Education

Course Administration or Director:

- Jul 2004 Co-Chairman, VCOM Summer CME Program, “An Osteopathic Approach” Sports Medicine
- Nov 2004 Co-Chairman, 48th Annual AOA Research Conference, “Manual Medicine in Special Populations,” San Francisco, CA
- Jan 2005 Co-Chairman, Promedica Health System CME Program, “An Osteopathic Approach” Sports Medicine Series
- Jul 2005 Co-Chairman, VCOM Summer CME “On the Field Osteopathy – Sports Medicine Series”
- Oct 2008 Co-Chairman, American Osteopathic Association Research Conference, Las Vegas, NV

CME Courses/Seminars/Workshops Taught:

- 1989 **Program Chairman**, AOASM Conference, (Held in conjunction with Boston Marathon). Boston, MA
- 1991 Biomechanical Evaluation and Rehabilitation: **Session Chair**, “An Approach to Diagnosis and Management of Some Common Running and Jumping Injuries,” AOA Convention, Las Vegas, NV

- 1992 "Increased Training and Mood States: Influence of Cross Training," ACSM National Meeting, Dallas, TX
- 1992 Nov "Mood State and Subjective Responses to a 24-Hour Race," ACSM Annual Meeting, Dallas, TX
- 1992 "Immune System Responses to Excessive Training: Influence of Cross Training," ACSM Midwest Chapter Winter Meeting, Boyne Falls, MI
- 1992 "Hormonal Responses to Excessive Training: Influence of Cross Training," ACSM Annual Meeting, Dallas, TX
- 1992 Feb "Excessive Training and Foot Impact Shock in Competitive Distance Runners," ACSM Annual Meeting, Dallas, TX
- 1992 "Cycling Injuries: An Old Sport on the Rise," AOASM Clinical Conference, Colorado Springs, CO
- 1993 Feb "Mood State and Subjective Responses to a 24-Hour Race," Midwest ACSM Winter Conference, Boyne Falls, MI
- 1993 Feb "Lymphocyte Mitogenesis and Natural Cell-Mediated Cytotoxicity Following a 24-Hour Run," Midwest ACSM Winter Conference, Boyne Falls, MI
- 1993 Feb "The Responses of Lymphocyte Subpopulations and Selected Hematological Parameters to a 24-Hour Race," Midwest ACSM Annual Meeting, Boyne Falls, MI
- 1993 "The Thoracolumbar Spine in Sports," The Ohio Athletic Trainers' Association, 9th Annual Symposium, Toledo, OH
- 1993 "Strength Training in Sports," Family Practice Review and Advanced Trauma Life Support Course. Tantara Resort, Lake of the Ozarks, MO
- 1993 Apr "Roundtable Discussion: Sports Medicine Certification," AOASM Clinical Conference, New Orleans, LA
- 1993 "Cutting Edge Diagnostic Techniques," **Session Chair**, AMSSM Clinical Conference, Sun Valley, ID
- 1993 "Cross Training: Indices of Training Stress and Performance," ACSM National Meeting, Indianapolis, IN
- 1993 Apr "Cold Weather Exercise," AOASM Annual Meeting, New Orleans, LA
- 1994 Feb "Cross Training on Indices of Training Stress and Performance," Midwest ACSM Winter Conference, Boyne Falls, MI
- 1994 Feb "The Effects of Excessive Training and Detraining on Testicular Function," Midwest ACSM Winter Conference, Boyne Falls, MI
- 1994 Feb "Psychological and Endocrine Responses to a 24-Hour Road Race," Midwest ACSM Winter Conference, Boyne Falls, MI
- 1994 Feb "Rhabdomyolysis induced acute renal failure in an ultra-endurance athlete presenting as an upper gastrointestinal bleed," Midwest ACSM Winter Conference, Boyne Falls, MI
- 1994 Feb "Natural Cell-Mediated Cytotoxicity and Lymphocyte Mitogenesis Following a 24-Hour Road Race," Midwest ACSM Winter Conference, Boyne Falls, MI
- 1995 Oct "Lumbosacral Spine Imaging Workshop," AOASM 21st Century and Solutions in Osteopathic Medicine, Las Vegas, NV
- 1995 "Primary Care and Preventive Medicine: Utilizing the Team Approach to Industrial/Occupational Medicine," AOA Convention and Scientific Seminar, Orlando, FL

- 1995 "Primary Care and Preventive Medicine: Building the Team!" ACSM Midwest Chapter, Wright State University, Dayton, OH
- 1995 "Industrial Medicine and Sports Medicine: Comparisons and Similarities," Western Ohio Occupational Medicine Association Conference, Toledo, OH
- 1995 "Concussion: When to Return to Play; the Dilemmas," ACSM Midwest Chapter, Pheasant Run, IL
- 1995 "Casting Seminar," Ohio Academy of Family Physicians 1995 Scientific Assembly, King's Island, Cincinnati, OH
- 1995 "Sports Anemia," Continuing Medical Education Associates (CMEA). Sports and Occupational Medicine in Primary Care, San Diego, CA
- 1995 "Ergogenic Aids: Licit and Illicit," Continuing Medical Education Associates (CMEA). Sports and Occupational Medicine in Primary Care, San Diego, CA
- 1996 Jun "Adolescent Male Athletes' Perceptions of an Experience with Athletic Cup Protection," AMSSM and AOASM (Combined Meeting), Orlando, FL
- 1996 Sep "Foot and Ankle Injuries," Continuing Medical Education Associates (CMEA). Office Orthopedics and Bone Radiology for the Primary Care Physician, New Orleans, LA
- 1996 Sep "Common Traumatic Knee Injuries," Continuing Medical Education Associates (CMEA). Fall Internal Medicine Program. New Orleans, LA
- 1996 Sep "Common Injuries in Runners," Continuing Medical Education Associates (CMEA). Office Orthopedics and Bone Radiology in the Primary Care Physician, New Orleans, LA
- 1996 Sep "Practical Approach to Low Back Pain," Continuing Medical Education Associates (CMEA). Fall Internal Medicine Program, San Diego, CA
- 1996 Oct "Common Lower Extremity Injuries in Athletes," Ironman Sports Medicine Conference, Kona Surf Resort, Big Island, HI
- 1996 Oct "Cervical Spine Injuries," Ironman Sports Medicine Conference, Kona Surf Resort, Big Island, HI
- 1997 Apr "The Twisted Ankle: When an X-Ray is Not Indicated," Office Orthopedics and Bone Radiology for the Primary Care Physician, Royal Sonesta Hotel, New Orleans, LA
- 1997 Apr "Prevention and Treatment of Common Running Injuries," Office Orthopedics and Bone Radiology for the Primary Care Physician, Royal Sonesta Hotel, New Orleans, LA
- 1997 Apr "Osteopathic Considerations for the Lower Extremity," AMSSM Sixth Annual Meeting, Colorado Springs, CO
- 1997 Jul "A Practical Approach to Low Back Pain," Continuing Medical Education Associates (CMEA). The Orlando Primary Care Review Course, Buena Vista Palace Resort and Spa, Walt Disney World Village, FL
- 1997 Sep "Taping and Splinting Workshop," Continuing Medical Education Associates (CMEA). Internal Medicine Fall Program, Loews Resort, San Diego, CA
- 1997 Oct "DHEA: A Hormone for the Ages," AOA 192nd Annual Convention and Scientific Seminar, San Antonio, TX
- 1998 Mar "Workshop: Casting Clinic – The Short Arm Cast," Continuing Medical Education Associates (CMEA). The Office Orthopedics and Bone Radiology for the Primary Care Physician, Royal Sonesta Hotel, New Orleans, LA

1998 Mar "Prevention and Treatment of Running Injuries," Continuing Medical Education Associates (CMEA). The Office Orthopedics and Bone Radiology for the Primary Care Physician, Royal Sonesta Hotel, New Orleans, LA

1998 Mar "The Twisted Ankle: When an X-Ray is Not Indicated," Continuing Medical Education Associates (CMEA). The Office Orthopedics and Bone Radiology for the Primary Care Physician. Royal Sonesta Hotel, New Orleans, LA

1998 Mar "Toe Jams, Flat Feet and Aching Arches: The Fore, Mid, and Hind Foot," Continuing Medical Education Associates (CMEA). The Office Orthopedics and Bone Radiology for the Primary Care Physician. Royal Sonesta Hotel, New Orleans, LA

1998 Oct "Pain Management in the Athlete," AOA Annual Conference & Scientific Seminar, New Orleans, LA

1998 Oct "Alternative Medicine in the Nineties," St. John Hospital & Medical Center CME Seminar, Detroit, MI

1998 Oct "Lumbar Spine & Lower Extremities: Hands-on OMT," Sports Medicine Fellowship CME Seminar, Toledo, OH

1999 Oct "Common Foot and Ankle Problems in Athletes," Continuing Medical Education Associates (CMEA), San Diego, CA

1999 Jan "The Twisted Ankle: When an X-Ray is Not Indicated," Continuing Medical Education Associates (CMEA). The Office Orthopedics and Bone Radiology for the Primary Care Physician Course, La Jolla, CA

1999 Apr "Sports Medicine for the Radiographer," Continuing Medical Education Associates (CMEA) Ohio Radiologic Society, Wyndham Hotel, Toledo, OH

1999 May "Essentials of Short Arm Casting," The Office Orthopedics and Bone Radiology Continuing Medical Education Associates (CMEA), Las Vegas, NV

1999 Jun "Clinical Case Report: Back Pain – Soccer," ACSM Annual Meeting, Seattle, WA

1999 Jun "Osteopathic Approach to the Wrist & Elbow," ACSM Annual Meeting, Seattle, WA

1999 Oct "Exercise and Its Effect on the Immune System," Annual AOA OMED Meeting, San Francisco, CA

2000 Jan "Essentials of Short Arm Casting," The Office Orthopedics and Bone Radiology Continuing Medical Education Association (CMEA), Las Vegas, NV

2000 Mar "Workshop: Casting Clinic – The Short Arm Cast," Continuing Medical Education Associates (CMEA), The Office Orthopedics and Bone Radiology for the Primary Care Physician Course, New Orleans, LA

2000 Mar "Workshop: Program Directors/Inspectors," ACOFP 37th Annual Convention and Scientific Seminar, Bally's Hotel, Las Vegas, NV

2000 Apr "Sports Medicine Injuries in the Foot & Ankle: Technologies and Treatment," Northwest Ohio Academy of Podiatric Medicine Retreat, Maumee Bay Resort, Toledo, OH

2000 Apr "Panel Discussion: Primary Care Sports Medicine in a Managed Care World," AMSSM 9th Annual Meeting, San Diego Hilton Resort. San Diego, CA

2000 Apr "Workshop: Casting Clinic – The Short Arm Cast," Continuing Medical Education Associates (CMEA), The Office Orthopedics and Bone Radiology for the Primary Care Physician Course, Las Vegas, NV

2000 May "Cervical Spine Trauma: The 1998 Goodwill Games Gymnastic Event" AOASM 15th Annual Clinical Conference, Williamsburg, VA

2000 May "Team Physician Consensus Statement," AOASM 15th Annual Clinical Conference, Williamsburg, VA

2000 May **Session Chair** for Case Presentations, AOASM 15th Annual Clinical Conference, Williamsburg, VA

2000 May "Diagnostic and Imaging Workshop," AOASM 15th Annual Clinical Conference, Williamsburg, VA

2000 May "Olympic and Professional Sports Update (Skiing)," 15th Annual Clinical Conference, Williamsburg, VA

2000 May "The Clinical Disciplines of Sports Medicine: Future Speculations," ACSM Annual Meeting, Indianapolis, IN

2000 Jun "Clinical Workshop: Osteopathic Approach to the Pelvis," ACSM Annual Meeting, Indianapolis, IN

2000 Sep "Lower Extremity Manipulative Techniques in Sports," The Millennial Founder's Day Osteopathy for the Ages. A Manipulative Update & Family Practice Reunion, Kirksville, MO

2000 Sep "Sports Medicine Update," The Millennial Founder's Day Osteopathy for the Ages. A Manipulative Update & Family Practice Reunion, Kirksville, MO

2001 Feb "Injuries and Disorders of the Knee," Michigan State University Conference, Lansing, MI

2001 Mar "What is a Team Physician?" ACOFP Medical Conference, Philadelphia, PA

2001 Apr **Session Chair**, Cycling Symposium, AOASM and AMSSM Medical Conference, San Antonio, TX

2001 Apr "Lower Extremity Workshop," AOASM and AMSSM Medical Conference, San Antonio, TX

2001 Apr "Essentials in Short Arm Casting Workshop," Office Orthopedics and Primary Care Sports Medicine for the Practicing Clinician, Continuing Medical Education Association, Scottsdale, AZ

2001 Apr "Don't Get Overstressed Treating Overuse Injuries," Office Orthopedics and Primary Care Sports Medicine for the Practicing Clinician, Continuing Medical Education Association, Scottsdale, AZ

2001 Apr "The Knee Conundrum," Office Orthopedics and Primary Care Sports Medicine for the Practicing Clinician, Continuing Medical Education Association, Scottsdale, AZ

2001 May "Osteopathic Approach to the Thoracic Spine and Ribs," Lecture and Workshop at American College of Sports Medicine, Baltimore, MD

2001 Jul "Sports Medicine Approach to Lower Extremity Diagnosis and Manipulative Treatment," International Federation of Manual/Musculoskeletal Medicine, Chicago, IL

2001 Jul "State of the Art Integrated Manual Medicine in Sports," International Federation of Manual/Musculoskeletal Medicine, Chicago, IL

2002 Apr "Low back Mobilization - Pelvic-Sacroiliac Joint," AOASM 11th Annual Meeting, Orlando, FL

2002 Apr "Strength Training in the Elderly: Can Old Dogs Learn New Tricks?" 17th Annual Clinical Conference, Washington, DC

2002 Jun "Osteopathic Approach to Upper Quadrant Injuries in the Athlete," Annual Meeting, St. Louis, MO

2002 Jun "Hits, Heat and Athletic Hearts," Ohio Osteopathic Association 104th Annual Meeting & Scientific Seminar, Cincinnati, OH

2003 May "Osteopathic Sports Medicine: Making a Difference," VOMA Annual Spring Conference, Hot Springs, VA

2003 May "Sports Medicine Update," Southwestern Virginia Medical Society; Annual Spring Meeting; Blacksburg, VA

2003 May "SI Dysfunction in Sports," VOMA Annual Spring Conference, Hot Springs, VA

2003 Apr "Low Back Mobilization Techniques in Sports," AOASM 12th Annual Clinical Conference, San Diego, CA

2003 Apr "Founder's Pearls," AOASM 12th Annual Clinical Conference, San Diego, CA

2003 Apr "Efficient Sideline Medical Documentation," AOASM 12th Annual Clinical Conference, San Diego, CA

2003 Apr "OMT for the Lower Extremity in Sports," AOASM 12th Annual Clinical Conference, San Diego, CA

2003 Apr "Program Inspector's Workshop," AOASM 12th Annual Clinical Conference, San Diego, CA

2003 Apr "Program Director's Forum," AOASM 12th Annual Clinical Conference, San Diego, CA

2003 Jun "The Collapsed Athlete," Session Chair, ACSM; San Francisco, CA

2004 Feb "Shoulder Workshop," ACSM Team Physician Course, Part I: Las Vegas, NV

2004 Feb "Gastrointestinal Dysfunction in Athletes," ACSM Team Physician Course, Part I: Las Vegas, NV

2004 Feb "Sports Psychology, What Works and Why," ACSM Team Physician Course, Part I: Las Vegas, NV

2004 Feb "Pelvic Dysfunction in Female Athletes," ACSM Team Physician Course, Part I: Las Vegas, NV

2004 Feb "GI Dysfunction in Athletes," ACSM Team Physician Course, Part I: Las Vegas, NV

2004 Apr "Spine Imaging Workshop," AOASM 19th Annual Clinical Conference, Boston, MA

2004 Apr "Lower Extremity Manipulative Techniques in Sports Medicine," AOASM 19th Annual Clinical Conference, Boston, MA

2004 Apr "Program Director's Workshop," AOASM 19th Annual Clinical Conference, Boston, MA

2004 Apr "Clinical Consequences of Head Accelerations in Collegiate Football," AOASM 19th Annual Clinical Conference, Boston, MA

2004 Apr "Manual Medicine and Sports Workshop," Rendezvous 2004: Five Society Sports Medicine Meeting, Vancouver, BC

2004 Apr "Manipulation and Sports Performance," Rendezvous 2004: Five Society Sports Medicine Meeting, Vancouver, BC

2004 Apr "Sports Prolotherapy," Rendezvous 2004: Five Society Sports Medicine Meeting, Vancouver, BC

2004 Apr "Clinical Consequences of Head Accelerations in Collegiate Football,"
Rendezvous 2004: Five Society Sports Medicine Meeting, Vancouver, BC

2004 Apr "Sports Medicine as a Certified Specialty: Roundtable Discussion,"
Rendezvous 2004: Five Society Sports Medicine Meeting, Vancouver, BC

2004 Apr "Pain Management and Sports," Southwestern Virginia Medical Society;
Annual Spring Meeting; Blacksburg, VA

2004 Nov "The Osteopathic Approach to the Athlete: A Hands-On Approach," AAO 48th
Annual AOA Research Conference, San Francisco, CA

2004 Nov "Working with the Trained Athlete – Pre-competition Manipulation," AAO 48th
Annual AOA Research Conference, San Francisco, CA

2004 Nov "Sacroiliac Pain Syndromes" and "Workshop: OMT for Sacroiliac Pain," AAO,
San Francisco, CA

2005 Apr "Head Injury Update," AOASM 20th Annual Clinical Conference, St. Louis,
MO

2005 Apr "Medical Preparedness for Team Travel," 20th Annual Clinical Conference,
St. Louis, MO

2005 May "Muscle Energy, "Lower Extremity Techniques," Mid Atlantic Trainers
Association Annual Meeting; May 2006. Virginia Beach, VA

2005 Jun "Electrocardiographic Interpretation of Cardiac Dysrhythmias for Beginners,"
ACSM 52nd Annual Meeting, Nashville, TN

2005 Jun "Clinical Workshop, Examination of the Cervical Spine," ACSM 52nd Annual
Meeting, Nashville, TN

2005 Jun "Clinical Workshop, Examination of the Low Back," ACSM 52nd Annual
Meeting, Nashville, TN

2006 Apr "Shoulder Exam / Prolotherapy," American Association of Orthopedic
Medicine 23rd Annual Conference and Scientific Seminar, Washington, DC

2006 May "What's New in Concussion Evaluation and Management?" AOASM 21st
Annual Clinical Conference, Scottsdale, AZ

2006 May "View from the Mountain-Olympic Ski Team Coverage." AOASM 21st Annual
Clinical Conference, Scottsdale, AZ

2006 Jun "Inflammation After Acute Musculoskeletal Injuries: Friend or Foe?" ACSM
53rd Annual Meeting, Denver, CO

2006 Jun "On-the-Field Management of the Spine-Injured Athlete" ACSM 53rd Annual
Meeting, Denver, CO

2006 Jun "Clinical Workshop, Kinetic Chain Evaluation" ACSM 53rd Annual Meeting,
Denver, CO

2006 Oct "Current Concepts in the Evaluation & Treatment of Concussion" 30th Annual
Meeting of the American Society of Biomechanics, Blacksburg, VA

2007 Feb "Measurement and Prediction of Head Injuries for Helmeted Athletes" 5th
Annual Center for Biomechanics Instructional Symposium, Blacksburg, VA

2007 Feb "Meeting the Needs of Patients with Osteoarthritis: Focusing on the
Effectiveness and Safety of Treatment Modalities" Continuing Medical
Education, Cleveland, OH

2007 Mar "Meeting the Needs of Patients with Osteoarthritis: Focusing on the
Effectiveness and Safety of Treatment Modalities" Continuing Medical
Education, Cincinnati, OH

2007 Mar "Managing Head and Neck Trauma," ACSM 54th Annual Meeting Clinical Case Report, New Orleans, LA

2007 Jun "Analysis of Linear Head Accelerations from Collegiate Football Impacts," Eighth Annual Philadelphia Sports Medicine Congress

2008 Mar "Manual Manipulation Techniques, SI Joint, L-Spine, T-Spine," AMSSM Rendezvous II Meeting, Las Vegas, NV

2008 Apr "Exercise and the Elderly," AOASM 23rd Annual Clinical Conference, Kansas City, MO

2008 May "Treating Musculoskeletal Injuries with Osteopathic Techniques: A Primer for Non-Osteopathic Practitioners," ACSM 55th Annual Meeting, Indianapolis, IN

2008 Sep "Healthy Joints for a Lifetime-Joint and Postural Health," VOMA CME Conference, Roanoke, VA

2008 Oct "Clinical Implications of Head Acceleration and Mild Traumatic Brain Injury," AOA Annual Convention and Scientific Seminar, Las Vegas, NV

2008 Oct "Pre-Competition Manipulation and Performance," AOA Annual Convention and Scientific Seminar, Las Vegas, NV

2008 Oct "The Biomechanics of Achilles Tendon Rupture," AOA Annual Convention and Scientific Seminar, Las Vegas, NV

2009 Mar "The Biomechanical Basis for Mild Traumatic Brain Injury" AOASM Annual Clinical Conference, Snowbird, UT

2009 May "Traumatic Brain Injury-Understanding and Management Approaches," ACOFP Annual Convention & Exhibition, Washington, DC

2010 Apr "The Biomechanical Basis for Mild Traumatic Brain Injury," NCOMA Convention, Raleigh, NC

2010 Apr "The Athlete and Orthopedic Medicine" (**Keynote Address**) American Academy of Orthopedic Medicine 27th Annual Conference, Amelia Island, FL

2010 May "Exercise is Medicine," South Boston Exercise & Metabolism Seminar, Halifax Regional Hospital, South Boston, VA

2010 Aug "The Biomechanical Basis for Mild Traumatic Brain Injury," Athletic Trainers Society of New Jersey Sports Concussion Summit, Plainsboro, NJ

2010 Oct "Current Research on Concussion and Mild Traumatic Brain Injury," AOA/AOASM Annual Fall Conference, San Francisco, CA

2011 Feb "OMT for Sports Injury" and "Biomechanical Basis for MTBI," WVSOM Midwinter Osteopathic Seminar, Charleston, WV

2011 Oct "STAR Football Helmet Rating System: Clinical and Practical Implications," AOA/AOASM OMED 2011, Orlando, FL

2011 Nov "On-Field Emergencies" and "Concussion Evaluation and Treatment," Halifax Regional Hospital Sports Medicine Symposium, South Boston, VA

2012 Feb "Clinical Implications of Youth Football Head Accelerations" and "Biomechanical Basis for Mild Traumatic Brain Injury", MSU Neurology Rehabilitation Grand Rounds, East Lansing, MI

2012 Apr "Exercise and Immune Function" (**Keynote Address**) & "The STAR Helmet Ranking System," 20th Annual KCUMB Research Symposium, Kansas City, MO

2012 Apr "The STAR Helmet Ranking System; Clinical and Practical Implications", 7th Annual VCOM Research Recognition Day, Blacksburg, VA

2012 Apr "Pre-competition Manipulation and Performance among Virginia Tech Football Players during the 2008-2009 Football Season Pilot Study", Using Manual and Conventional Therapies to Enhance Musculoskeletal Health Conference hosted by The Osteopathic Research Center, Fort Worth, TX

2012 Oct "The Biomechanical Basis of MTBI" and "Head Accelerations in Youth Football," AOA OMED 2012, San Diego, CA

2013 Mar "Return to Play After Concussion", 28th Annual AOASM Clinical Conference, Colorado Springs, CO

2013 Apr "Traumatic Brain Injury Update", Regional Osteopathic Medical Education (ROME) Southeast Conference, Myrtle Beach, SC

2013 Jun "Equipment and Head Injury Prevention", 3rd Annual Brewer Sports Symposium, Minneapolis, MN

2013 Sep "Head Impact Biomechanics in Sport: Clinical and Practical Implications" and "Current Research and Helmet Technology in Concussion" and "Clinical and Practical Implications of Head Accelerations in Youth Football," AOA OMED 2013, Las Vegas, NC

2014 Jan "Standards of Care in Treating Multiple Concussions", 2nd Annual #C4CT Concussion Awareness Summit, New York, NY

2014 Feb "OMM for Family Practice Board Review", Danville Regional Medical Center Family Medicine Residency, Danville, VA

2014 Mar "Emerging Trends in Concussion Research" Annual AOASM Clinical Conference, Tampa, FL

2014 Mar "Clinical and Practical Implications of Sports Related Traumatic Brain Injury," AAO Convocation, Colorado Springs, CO

2015 Oct "Traumatic Brain Injury," "Return to Play from Traumatic Brain Injury," AOA OMED 2015, Orlando, FL

2016 May "Update on Concussion Sensor Technologies," and "Pardon the Sports Medicine Interruption," Annual AOASM Clinical Conference, Tempe AZ

2017 Oct "Post-Concussion Research Update and Treatment Options", AOA OMED 2017, Philadelphia, PA

2018 May "Status Post Concussion: The Impact on Motor Control" American Osteopathic Academy of Sports Medicine; AOASM Conference; May, 2018

2019 Mar "Concussion Research Update: Why OMT is Necessary For Our Athletes" American Academy of Osteopathy; AAO Conference; March 2019

2019 Mar "Concussion OMT Workshop." American College of Osteopathic Family Medicine; ACOFP Conference; March 2019

2019 Mar "Concussion Clinical Evaluation, Treatment and Research Update." American College of Osteopathic Family Medicine; ACOFP Conference; March 2019

2019 Jun "VCOM Caribbean and Central American Global Clinical, Research and Education Potential for Collaboration with SOUTHCOM." US Southern Command Meeting; June 2019

2019 Jul "Is That Head Injury a Concussion?" ACC and AAC Officials Meeting; Charlotte, NC; July 2019

2020 Oct "Mild Traumatic Brain Injury, Evaluation and Treatment." VOMA 2020 Fall CME Virtual Conference. October 2020

- 2020 Oct "Pain Across the Ages." AOA OMED Medical Conference and Exposition, Austin, TX; October 2020, Virtual Presentation
- 2021 Dec "Research Retreat State of Research at VCOM." The 7th Annual VCOM Research Retreat; Hilton Head Island, SC; December 2021
- 2022 Mar "Pre-competition Manipulation: What Inquiring Minds Want to Know!" 2022 AAO & AOASM Joint Convocation; March 2022
- 2022 Mar "Concussion Research Update...Why Our Patients Need OMT." 2022 AAO & AOASM Joint Convocation; March 2022
- 2022 Oct "Status Post Concussion: The Impact on Motor Control." VOMA 2022 Fall CME Virtual Conference, October 2022
- 2022 Nov "State of Biomedical Research Processes at VCOM." The 8th Annual VCOM Research Retreat; Spartanburg, SC, November 2022
- 2022 Nov "VCOM Protocols and Processes for Student Research Mentorship." The 8th Annual VCOM Research Retreat; Spartanburg, SC, November 2022
- 2023 Nov "State of Biomedical Research Processes at VCOM." The 9th Annual VCOM Research Retreat, Auburn, AL, November 2023.
- 2023 Nov "VCOM Student Research Update." The 9th Annual VCOM Research Retreat, Auburn, AL, November 2023.
- 2023 Nov "MSK Ultrasound Machine Learning approaches for Low Back pain evaluation and treatment." The 9th Annual VCOM Research Retreat, Auburn, AL, November 2023.
- 2024 Apr "Exercise and Immune Function." Presented at the Virginia Osteopathic Medical Association (VOMA) 2024 Spring CME Conference. Williamsburg, VA, April 2024.
- 2024 Apr "Clinical Databases and Syndromic Surveillance." Virginia Osteopathic Medical Association (VOMA) 2024 Spring CME Conference. Williamsburg, VA, April 2024 (with F. Rawlins II).
- 2024 Sep "Concussion Research and Implications for Clinical Osteopathic Practice." Edward Via College of Osteopathic Medicine Virginia-Campus Homecoming CME Sessions. Blacksburg, VA, September 7, 2024.
- 2024 Nov "State of Biomedical Research Processes at VCOM." The 10th Annual VCOM Research Retreat, Blacksburg VA, November 2024.
- 2024 Nov "All-of-Us Database: A Resource for Student Research Projects." The 10th Annual VCOM Research Retreat, Blacksburg VA, November 2024 (with R. Anandkrishnan and OMSII P. Varrey).
- 2025 Nov "Overview of Medical Research at VCOM for 2025." The 11th Annual VCOM Research Retreat, Blacksburg VA, November 2025.
- 2025 Nov "Utilizing the Power of NVIDIA DGX Computing via AAICE for Research." The 11th Annual VCOM Research Retreat, Blacksburg VA, November 2025.

Undergraduate

Clinical Rotation in Sports Medicine at VCOM/VT, School of Biomedical Engineering & Sciences, BMES 6064 (Virginia Tech), BMES 706 (Wake Forest), Primary Instructor

CLINICAL EXPERIENCE/EMPLOYMENT

1984 – 1995 Medical Director, "Health Check" Corporate Fitness Program, Parkview

- Hospital, Toledo, OH
- 1984 – 1992 Attending Physician, The Point Place Medical Clinic, General Family Practice and Primary Care Sports Medicine, Toledo, OH
- 1984 – 1990 Medical Director/Founder, “Sports Check” Sports Medicine Clinic, Parkview Hospital, Toledo, OH
- 1984 – 2002 Adjunct Clinical Professor of Family Practice, Ohio University College of Osteopathic Medicine, Ohio University, Athens, OH
- 1986 – 2002 Co-Head Team Physician, University of Toledo Rockets, University of Toledo, Toledo, OH
- 1986 – 2002 Clinical Preceptor for Family Practice and Sports Medicine, W.W. Knight Family Practice Residency, The Toledo Hospital, Toledo, OH
- 1986 – 1993 Co-Medical Director, “The Sports Medicine Connection,” W.W. Knight Family Practice Residency, Toledo, OH
- 1988 – 2002 Medical Director, Kinesiotherapy Clinic, Department of Kinesiology, College of Health Promotion and Human Services, University of Toledo, Toledo, OH
- 1992 – 1995 Attending Physician, Family Practice Associates, General Family Practice and Primary Care Sports Medicine, Toledo, OH
- 1993 – 2002 Co-Medical Director, Primary Care Sports Medicine Fellowship, The Toledo Hospital/ProMedica Health System, Toledo, OH
- 1993 – 2002 Medical Director, Welltrack, The Corporate Wellness Program, The Toledo Hospital and ProMedica Health System, Toledo, OH
- 1993 – 2002 Clinical Assistant Professor, Department of Orthopedic Surgery, School of Medicine, Medical College of Ohio, Toledo, OH
- 1993 – 2002 Medical Director, High School Sports Medicine Outreach Program, The Toledo Hospital and ProMedica Health System, Toledo, OH
- 1994 – Volunteer Physician, United States Olympic Committee
- 1995 – 2001 Attending Physician, Port Sylvania Family Physicians, General Family Practice and Primary Care Sports Medicine, Toledo, OH
- 1996 – Team Physician, United States Ski and Snowboard Association
- 2001 – 2002 Attending Physician, Timberstone Family Physicians, General Family Practice and Primary Care Sports Medicine, Toledo, OH
- 2002 – 2019 Head Team Physician, Virginia Polytechnic Institute and State University, Blacksburg, VA
- 2004 – 2008 Head Team Physician, U.S. Freestyle Ski Team
- 2005 – 2019 Medical Director, Primary Care Sports Medicine Fellowship, Edward Via College of Osteopathic Medicine and Virginia Tech, Blacksburg, VA
- 2020 – Senior Medical Staff/Team Physician, Virginia Polytechnic Institute and State University, Blacksburg, VA
- 2020 – Medical Director – Emeritus, Primary Care Sports Medicine Fellowship, Edward Via College of Osteopathic Medicine and VirginiaTech, Blacksburg, VA (11 Fellows, 12 months per year)

PROFESSIONAL AFFILIATIONS

- 1984 – Member, American Osteopathic Association
- 1984 – Member, The American College of Osteopathic Family Practitioners
- 1984 – Member, American Academy of Family Physicians

- 1984 – Member, The American Academy of Sports Medicine
- 1984 – Member, The American College of Sports Medicine
- 1984 – Professional Member, American Running and Fitness Association
- 1984 – 2000 Member, The Association for Worksite Health Promotion
- 1984 – 2002 Member, Midwest Chapter of the American College of Sports Medicine
- 1984 – 2002 Member, Ohio Academy of Family Physicians
- 1984 – 2002 Member, Ohio Osteopathic Association
- 1984 – 2002 Member, Ohio State Medical Association
- 1984 – 2002 Member, The Toledo Academy of Medicine
- 1984 – 2012 Member, American Medical Association
- 1990 – Charter Member, American Medical Society for Sports Medicine
- 2002 – Member, Virginia Osteopathic Medical Association
- 2002 – Member, Medical Society of Virginia
- 2002 – Member, Southeast Chapter of the American College of Sports Medicine
- 2018 – 2020 Member, Family Practice Representative, American Osteopathic Conjoint Sports Medicine Exam Committee, American Osteopathic Association
- 2019 – 2020 Member, Health Expo Committee, American Osteopathic College of Family Physicians
- 2021 – Chairman, American Osteopathic Conjoint Sports Medicine Exam Committee, American Osteopathic Association

HONORS AND AWARDS

- 1996 Fellow, American Osteopathic Academy of Sports Medicine
- 1997 Outstanding Young Physician, Ohio State Medical Association
- 1998 Family Practice Teaching Award, American Academy of Family Practice
- 2001 Fellow, American Academy of Family Practice
- 2004 Named in America's Top Family Physicians, 2004-2005 Edition
- 2006 Fellow, American College of Osteopathic Family Practice
- 2006 Medical Staff for the Winter Olympic Games, Turin, Italy
- 2006 Named to the Olympic Sports Medicine Society
- 2008 William J. Legg D. O. Distinguished Lecture Award
- 2008 Named in America's Top Family Physicians, 2008-2009 Edition
- 2010 Medical Staff for the Winter Olympic Games, Vancouver, BC
- 2010 American Osteopathic Foundation Beehler Research Mentor of the Year Award
- 2018 American Osteopathic Academy of Sports Medicine Mentor of the Year Award
- 2020 Academic Keys Who's Who in Engineering Higher Education (WWEHE)
- 2021 American Osteopathic Foundation W. Douglas Ward, PhD, Educator of the Year Award
- 2022 Presented the 2022 Goldstein Lecture of the Osteopathic Research Center, "Concussion Research and Implications for Clinical Osteopathic Practice"

PROFESSIONAL SERVICE

Editorial Boards & Invited Reviewer

- 1995 – Physician Editorial Reviewer, The Journal of Osteopathic Medicine (formerly the Journal of the American Osteopathic Association)
- 1998 – 2004 Associate Editor, Sports Medicine Alert
- 1998 – 2004 Associate Editor, Clinical Journal of Sports Medicine
- 1998 – 2002 Editorial Board Member, The Physician and Sports Medicine
- 2002 – 2006 Section Editor, Competitive Sports and Pain Management, Current Sports Medicine Reports
- 2005 Co-Editor (Best TM, **Brolinson PG**), “Return to Play Thematic Issue.” Clinical Journal of Sport Medicine
- 2009 – 2019 Editorial Board Member, The Journal of Osteopathic Medicine (formerly the Journal of the American Osteopathic Association)

Currently serving as a reviewer for the following publications:

- Complementary Therapies in Medicine
- Journal of Science and Medicine in Sport
- Current Sports Medicine Reports
- The Physician and Sports Medicine
- Clinical Journal of Sports Medicine
- Sports Medicine Alert
- Medicine and Science in Sports and Exercise
- Clinical Journal of Sport Medicine
- Annals of Biomedical Engineering
- Journal of Osteopathic Medicine
- Brain Injury
- Discover Health Systems

Study Sections & Invited Reviewer

- 2009 Member, NIH Center for Complementary and Alternative Medicine Scientific Review Panel, ZAT1 RB(04)
- 2009 Member, NIH Center for Scientific Review Somatosensory and Chemosensory Systems Study Section
- 2010 Member, NIH Center for Complementary and Alternative Medicine Scientific Review Panel, ZAT1 SM(22)

National, Regional, & State Advisory Committees

- 1991 – 1994 Inaugural Board of Directors, American Medical Society for Sports Medicine
- 1991 – 1994 Founding Member, Research Committee, American Medical Society for Sports Medicine
- 1993 – 1996 Member, Board of Directors, Midwest Chapter, American College of Sports Medicine
- 1996 – 2001 Sports Medicine Representative, Council on Postdoctoral Training, American Osteopathic Association
- 1997 – 1998 President, Board of Directors, American Osteopathic Academy of Sports Medicine
- 1998 – 2003 Chairman, Sports Medicine Education and Evaluation Committee, American Osteopathic Association

1998 – 2019	Ex-officio Member, Board of Directors, American Osteopathic Academy of Sports Medicine
2004	Program Committee for Rendezvous 2004, 2004 International Sports Medicine Meeting, Vancouver, BC
2009	Past Presidents Committee, American Osteopathic Academy of Sports Medicine
2013 – 2014	Delegate, Congress of Delegates, ACOFP
2018 –	Member, 2018 Convention Health Expo Committee, ACOFP
2019 –	Chairman, Examination Committee, American Osteopathic Board of Family Physicians, Sports Medicine Conjoint Certification Representative
2019 –	Member, 2019 Health Expo Committee, ACOFP
2020 –	Chairman, American Osteopathic Conjoint Sports Medicine Exam Committee, American Osteopathic Association
2023 –	Member, National Advisory Council for Complementary and Integrative Health (NACCIH), NIH
2024 –	Member, Advisory Council Working Group on Spiritual Health, National Center for Complementary and Integrative Health (NCCIH), NIH

MENTORING ACTIVITIES

Research Mentorship

Prior to 2005	<p>Thesis Committee Member: Alison R. Snyder <i>Effect of Monophasic High Voltage Stimulation on Markers of Muscle Injury and Inflammation</i></p> <p>Dissertation Committee Member: Thomas Joseph McLoughlin <i>Neutrophil-mediated Skeletal Myotube Injury: The Contribution of Reactive Oxygen and Nitrogen Intermediates</i></p> <p>Dissertation Committee Member: Jonathan H. Anning <i>Plasma Volume Shifts During Exercise: Role of Exercise Mode and Training Status on Hydrostatic and Oncotic Forces</i></p> <p>Thesis Committee Member: Jennifer M. Peterson <i>Ibuprofen and Acetaminophen: Effect on Muscle Inflammation and Injury Following Eccentric Contractions</i></p> <p>Dissertation Committee Member: Michael R. Heifferon <i>An Upper Body Power Test for Adolescent Males</i></p> <p>Dissertation Committee Member: Francis X. Pizza <i>Increased training vs. cross training: Effects on immune system and performance</i></p> <p>Dissertation Committee Member: Heather L. Hall <i>Effects of excessive training on testicular function</i></p> <p>Dissertation Committee Member: Kathy K. Carroll <i>Influence of a resistance training program on immune system parameters in young men</i></p> <p>Dissertation Committee Member: Carol A. Weideman <i>Resistance training and immune system function in elderly women</i></p> <p>Dissertation Committee Member: Charles P. Lambert <i>Influence of exercise on suppressor cell function in healthy young males</i></p>
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2005 Apr **Thesis Committee Co-Chairman:** Sarah J. Manoogian
Analysis of Linear Head Accelerations in Collegiate Football Impacts

2005 May **Thesis Committee Member:** Erin L. Wilson
Effects of Fatigue and Gender on Peroneal Reflexes after Ankle Inversion

2006 May **Thesis Committee Member:** David Eugene McNeely
Analysis of Force-Limiting Capabilities of Football Neck Collars

2007 May **Thesis Committee Member:** Eric Kennedy
Predicting Risk of Orbital Fracture from Baseball Impact

2008 Aug **Dissertation Committee Member:** Qian Wang
Finite Element Modeling of Occupant Injury Risk and Crash Performance of W-Beam Guardrail Barriers in Roadside Crashes

2008 Dec **Dissertation Committee Member:** Courtney Ann Haynes
Evaluation of Gait and Slip Characteristics for Adults with Mental Retardation

2010 Mar **Dissertation Committee Member:** Andrew Kemper
The Biomechanics of thoracic skeletal response

2009 **Thesis Committee Member:** Christan Whysong
Chemosensory evaluation of training and oxidative stress in runners

2010 Mar **Dissertation Committee Member:** Craig P. Thor
The Effectiveness of Graduated Driver Licensing in the United States

2010 Oct **Dissertation Committee Member:** Eric A. Kennedy
The Development and Validation of a Biofidelic Synthetic Eye for the Facial and Ocular Countermeasures Safety (FOCUS) Headform

2011 Feb **Dissertation Committee Member:** Christan Whysong
Chemosensory evaluation of training and oxidative stress in runners

2012 Apr **Thesis Committee Member:** Christina Seimetz
Cranial movement as related to craniosacral therapy and a comparison of cadaver and test dummy head trajectories in sled tests

2013 Feb **Dissertation Committee Member:** Peter Fino
Gait Evaluation in Concussion

2013 Feb **Dissertation Committee Member:** Ray Daniels
Youth Football Head Accelerations

2014 **Dissertation Committee Member:** Ekwueme, E
Single Walled Carbon Nanohorns Modulate Extracellular Matrix Response in Tendons and Ligaments
Proliferative therapy-induced changes in the cellular response of human tenocytes

2015 Aug **Dissertation Committee Member:** Bethany Rowson
Evaluation and Application of Brain Injury Criteria to Improve Protective Headgear Design

2015 Dec **Thesis Committee Member:** Jaclyn Press
Biomechanics of Head Impacts in Soccer

2015 Dec **Thesis Committee Member:** Jake Smith
Quantifying the Effect of Helmet Fit on Performance

2017 Mar **Thesis Committee Member:** David Sproule
Evaluation of the Biomechanical Performance of Youth Football Helmets

2017 Mar **Thesis Committee Member:** Eamon Campoletano

- 2017 Apr *On-Field Measurements of Head Impacts in Youth Football: Characterizing High Magnitude Impacts and Assessing Balance Outcomes*
Thesis Committee Member: Evan McConnell
Assessing Symmetry in Landing Mechanics during Single-Leg and Bilateral Tasks in Health Recreational Athletes
- 2018 Jan **Thesis Committee Member:** Ty Morris
Evaluating the Head Injury Risk Associated with Baseball and Softball
- 2018 Apr **Thesis Committee Member:** Eamon Campolettano
Promoting Youth Football Player Safety: Development of a Youth Concussion Risk Function and Youth-Specific Postural Control Assessment
- 2018 Apr **Thesis Committee Member:** Ryan A. Gellner
Identifying High Risk Individuals in Youth Football and Evaluating Tackling Technique
- 2019 Mar **Thesis Committee Member:** Tessa Rieber
Replicating Helmet Testing Protocol on Multiple Systems and Investigating the Evolution of Helmets Based on Design and Helmet Performance
- 2020 May **Thesis Committee Member:** Emily Kiefer
Sex-specific Head Impact Exposure in Rugby: Measurement Considerations and Relationships to Clinical Outcomes
- 2020 Jul **Thesis Committee Member:** Summer Keim
Assessing the Performance of MIPS in Snowsport Helmets Under Varying Impact Surface Friction Conditions
- 2021 **Dissertation Committee Member:** Rezvani, S
A Novel Murine Muscle Loading Model to Investigate Achilles Musculotendinous Adaptation
Passive Tensile and viscoelastic properties of murine hindlimb flexor muscles
Development of A Novel Eccentric Muscle Loading Approach to Investigate Achilles Tendon Adaptation
Development of a Novel Pre-Clinical Eccentric Muscle Loading Approach for Tendinopathy Treatment
Hill-Type Muscle-Tendon Modeling of Plantar Flexion in the Mouse Hindlimb
- 2023 **Dissertation Committee Member:** Amirah Wright
Chronic Pain Outcomes After Blast TBI Using a Rat Model
- 2024 **Dissertation Committee Member:** Dylan Easley
In vivo Muscle Loading Therapy to Treat Achilles Tendinopathy
- 2025 **Dissertation Committee Member:** Jessica Wilkes
Investigating the Role of Canonical Wnt Signaling in Neurogenesis Following Mild Traumatic Brain Injury

VCOM Student Research Mentorship

- 2012 Michael Smolka, *Pre-competition Manipulation and Performance among Virginia Tech Football Players during the 2008-2009 Football Season Pilot Study*
- 2013 Michelle Keating, *Medical Coverage of the Greenbrier Classic PGA Tour Event*
- 2013 Jonas Rawlins, *Medical Coverage of the Greenbrier Classic PGA Tour Event*

- 2013 Andrew Wilhelm, *Platelet-Rich Plasma Treatment for Chronic Posterior Tibial Tendon Dysfunction*
- 2015 Lauren Becker (won 2015 Burnett Osteopathic Student Researcher of the Year), *An Increased Frequency of Lower Extremity Sprains and Strains Following Concussion*
- 2016 Jessica Naff, *The Clinical Effect of Osteopathic Manipulative Treatment on Lower Extremity Spasticity in Multiple Sclerosis Patients*
- 2019 Tripathi A, *Greater Accuracy in Concussion Diagnosis in Collegiate Athletes Through the Use of Blood Brain Biomarkers*
- 2019 Dhanju S, *Greater Accuracy in Concussion Diagnosis in Collegiate Athletes Through the Use of Blood Brain Biomarkers*
- 2020 Alicia Roldan, DO with Research Distinction, *Sonographic Assessment of Thoracolumbar Fascia*
- 2021 Annemarie Beran, DO with Research Distinction, *Pre-Competition Manipulation and Concussion Risk Among Virginia Tech Football Players during the 2008-2019 Football Seasons*
- 2021 Megan Craig, DO with Research Distinction, *Pre-Competition Manipulation and Concussion Risk Among Virginia Tech Football Players during the 2008-2019 Football Seasons*
- 2022 Jessica Cauthen, *“Brain Fog” and “Long COVID-19” Treated as a Syndrome Requiring Longstanding Support*
- 2022 Andres Maeso, *Acetabular Labral Tears in Division 1 Collegiate Athletes: A Comparative Analysis of Operative vs. Non-operative Management*
- 2022 Lauren Brown, DO with Research Distinction, *Osteopathy in the Cranial Field as a Method to Enhance Brain Injury Recovery: A Preliminary Study*
- 2025 Jacob Barnett, *Thoracolumbar Fascia Involvement in Chronic Low Back Pain*
- 2025 Jaeda Mattis, *Correlation Between Psychosocial Survey Scores And Thoracolumbar Fascia Glide Impairment in Chronic Low Back Pain*
- 2025 Dylan Carlson, Faheem Farooq, *Shear Wave Elastography of the Thoracolumbar Fascia as a Biomarker For Chronic Low Back Pain*
- 2025 Alexandra Reagan, Cara Satoskar, *Ultrasound-Guided Hydrodissection of the Thoracolumbar Fascia for Chronic Lower Back Pain*
- 2025 Marian Pedreira, *Passive Glide Assessment of Thoracolumbar Fascia as a Biomarker for Chronic Low Back Pain*
- 2025 Thuyduong Nguyen, Brandon Raquet, Victor Tran, *Biomechanical Analysis of Knee Valgus Angulation and Its Relationship With Lower Extremity Injury in Division 1 Collegiate Athletes*
- 2025 Antonio Balducci, Marissa Braitto, Jeffrey Wallace, *Slap Tears in Division I Overhead Throwing Athletes: A Comparative Analysis of Operative vs. Conservative Management*
- 2025 Logan O'Donnell, *FlexPro Grip Curveball Simulation Study*
- 2025 Tobias Addis, Andrew Hagen, *Does forearm flexor muscle strength imbalance contribute to medial elbow injury in baseball pitchers?*
- 2025 Melody Hahn, Atiya Qillawala, Nathaniel Heims, *Retrospective Study on Differences in Sport and Gender in D1 College Athletes with Baseline Concussion Testing Using the New SCAT-6 Concussion Assessment*

Other Mentorship

2009	Greg Beato, DO
2007	Mark Rogers, DO
2012	Brad McCrady, DO
2012	Stephanie Aldret, DO and Randy Aldret, EdD
2016	Brett Griesemer, Athletic Trainer
2018	Hope Tobey, DO, OMM Fellow
2021	M'Lindsey Romero, OMM Resident, <i>Effect of Osteopathic Manipulation on Gait Asymmetry</i>
2021	Logan Speicher, Athletic Trainer, <i>Seizure or Somatic Dysfunction: A Case of Long Term Recovery Following Craniotomy for Brain Tumor Resection in a Division 1 Student Athlete</i>

INSTITUTIONAL SERVICE

2003 – 2006	Member, Interdisciplinary Research Committee, Edward Via College of Osteopathic Medicine
2007 – 2014	Member, Institutional Review Board and Human Subjects Committee, Edward Via College of Osteopathic Medicine
2007 – 2017	Member, Graduate Medical Education Committee – Sports Medicine Fellowship, Montgomery County Regional Hospital, Christiansburg, VA
2007 –	Member, Continuing Medical Education Committee, Edward Via College of Osteopathic Medicine
2007 –	Member, President's and Provost's Council of Officers, Edward Via College of Osteopathic Medicine
2007 – 2022	Member, Curriculum and Assessment Oversight Committee, Edward Via College of Osteopathic Medicine
2007 – 2022	Member, Faculty Development Committee, Edward Via College of Osteopathic Medicine
2007 – 2022	Member, Institutional Environment and Biosafety Committee, Edward Via College of Osteopathic Medicine
2007 –	Member, Appointment, Promotion, and Tenure Committee, Edward Via College of Osteopathic Medicine
2008 – 2015	Co-Chairman, Institutional Review Board, Edward Via College of Osteopathic Medicine, Blacksburg, VA
2015 –	Chairman, Institutional Review Board, Edward Via College of Osteopathic Medicine, Blacksburg, VA

GRANTS AND CONTRACTS

Completed

Small Research Grant, University of Toledo	Flynn (PI)	1990
Cross Training: Effects on the immune system		
Role: Co-Investigator	Total Award: \$500	
The Athletics Congress (TAC), Indianapolis, IN	Flynn (PI)	1991
Cross Training: Effects on performance and selected indices of training stress		

Role: Co-Investigator	Total Award: \$5,000	
Becton-Dickinson Corporation Donated monoclonal antibodies to support TAC project	Flynn (PI)	1991
Role: Co-Investigator	Total Award: \$1,800 (in kind)	
University Research and Fellowship, University of Toledo Immune system function: Increased training vs. cross training	Flynn (PI)	1991
Role: Co-Investigator	Total Award: \$6,800	
United States Olympic Committee, Sports Medicine Council Cross training: Effects on performance and indices of immune system function	Flynn (PI)	1991
Role: Co-Investigator	Total Award: \$18,000	
Ross Laboratories, Columbus OH Fluid replacement drinks during prolonged exercise: Effects of minimizing exercise-induced disturbances in plasma volume	Flynn (PI)	1991
Role: Co-Investigator	Total Award: \$14,500	
DeArce Grant for Biomedical Research, University of Toledo Excessive training and testicular function	Flynn (PI)	1993
Role: Co-Investigator	Total Award: \$6,800	
Small Research Grant, University of Toledo Iron status and immune function	Flynn (PI)	1993
Role: Co-Investigator	Total Award: \$500	
The University of Toledo, Office of Research College Research Excellence Award	Flynn (PI)	1993
Role: Co-Investigator	Total Award: \$4,312	
Toledo Hospital Research Grant Resistance training and immune system function in elderly women		1994
Role: Principal Investigator	Total Award: \$8,000	
College of Education Foundation Grant Resistance training and immune function in young men	Flynn (PI)	1994
Role: Co-Investigator	Total Award; \$1,350	
University Research and Fellowship, University of Toledo The effect of training levels and sex hormones on immune function at rest and following exercise.	Flynn (PI)	1995
Role: Co-PI	Total Award: \$5,800	
Small Grant Program, University of Toledo	Flynn (PI)	1995

Exercise and Heat Shock Proteins Role: Co-PI	Total Award: \$500	
National Osteopathic Research Foundation, Educational Grants The role of Osteopathic Manipulative Medicine in treating sprained ankles Role: Co-Investigator	Total Award: \$5,000	1995-1997
AARP-ANDRUS Foundation, Washington, D.C. Resistance training programs for elderly women: Effects on functional capacity and selected indices of immune system function Role: Co-Investigator	Total Award: \$62,457	Flynn (PI) 1995-1997
ProMedica Health Care Foundation The effect of acute submaximal exercise on suppressor cell function in normal healthy males Role: Co-Investigator	Total Award: \$10,000	1995-1997
Toledo Hospital Research Grant Worksite health promotion and prevention project Role: Principal Investigator	Total Award: \$2,500	1995-1999
Toledo Hospital Research Grant Influence of exercise on suppressor cell function Role: Principal Investigator	Total Award: \$4,200	1996
The Toledo Hospital Research Grant Effects of a pilot exercise program on fitness and health status, and counseling behavior of health care professionals Role: Co-Investigator		Reeves (PI) 1997-1998
The Toledo Hospital Research Grant The risk of spondylolysis in multi-sport athletes Role: Principal Investigator	Total Award: \$2,500	1997-1999
YMCA Effect of Aquatic and Traditional Exercise programs on older men and women Role: Principal Investigator		1998-1999
ProMedica Investigator Award, ProMedica Foundation Weight bearing exercise and bone mineral density in female athletes Role: Co-Investigator	Total Award: \$5,000	Creighton (PI) 1998-1999
ProMedica Investigator Award, ProMedica Foundation Nurses' perceptions of and experiences with alternative/complementary medical therapies Role: Principal Investigator	Total Award: \$2,500	1998-1999
The Toledo Hospital Research Grant		Heiffron (PI) 1998-1999

The seated basketball put: An alternative upper body power test for adolescent males
Role: Co-Investigator Total Award: \$5,000

Harvey Peters Research Foundation 2003-2004
Head Accelerations and Clinical Implications in Collegiate Football Players
Role: Principal Investigator Total Award: \$50,000

Harvey Peters Research Foundation 2003-2005
Pre-competition manipulation pretreatment, injury prevalence and sports performance in college athletes
Role: Principal Investigator

Harvey Peters Research Foundation 2003-2004
Measuring ankle stability to predict ankle sprains
Role: Principal Investigator

Harvey Peters Research Foundation 2005-2006
Altered Peripheral Cytokine Profiles Associated with Heat Stress in Athletes: Identification of a Circulating Marker for Exercise Induced Endotoxemia
Role: Co-Principal Investigator

Virginia Tech Department of Mechanical Engineering 2005-2006
The Effects of Football Neck Devices on Neck Loads
Role: Co-Principal Investigator

Harvey Peters Foundation & Foot Levelers, Inc. 2007-2008
Orthotics and Dynamic Stability (Award No. 0042007). The objective of this study is to determine if orthotic intervention for older adults can reduce the likelihood of slip-induced fall accidents.
Role: Principal Investigator Total Award: \$53,315

Simbex (NIH 1 R01 HD48638) Greenwald (PI) 2007-2012
Biomechanical Basis of Mild Traumatic Brain Injury. Recruitment and assessment of 64 players from men's football program for instrumented helmet force plate analysis and neuropsychological testing of post-concussion symptoms and other clinical data.
Role: Lead Investigator Total Award \$2,300,000

Harvey Peters RC Foundation/ICTAS Brolinson and Mallikarjunan (Co-PIs) 2009-2011
Chemosensory Evaluation of Training and Oxidative Stress in Runners. Determine the feasibility of using a hand-held electronic nose utilizing conducting polymer based sensors in the evaluation of training loads resulting in oxidative stresses in long distance runners.
Role: Co-Principal Investigator Total Award: \$50,000

VCOM/VT Wake Forest School of Biomedical Engineering Duma (PI) 2011-2014
Head acceleration measurements in Youth Football
Role: Co-Investigator

Virginia Tech Carilion Research Institute LaConte (PI) 2011-2021
Characterizing Head Impact with Structural and Functional Magnetic Resonance Imaging
Role: Co-Investigator

Banyan Biomarkers, Department of Defense DOD #W81XWH-10-C-0251 2013-2014
A Prospective Clinical Evaluation of Biomarkers of Traumatic Brain Injury. Enrollment of up to
150 qualified participants in the ALERT-TBI Protocol.
Role: Site Principal Investigator, Carilion NRV Total Award: \$248,625

NSF OCI-1124123 Rudd (PI) 2016
Determining Feasibility and Scalability of a Life/Medical Science Hybrid-core Based Platform.
High-Performance Computing tool development and applications research that demonstrates
the utility to advance our knowledge of how to best process genomics "big data".
Role: Co-Investigator Total Award: \$90,000

DJO LLC Queen (PI) 2016-2019
Gender Differences in the Performance Response to Brace Wear Following ACL
Reconstruction
Role: Co-Investigator Total Award: \$147,747

VCOM REAP Queen (PI) 2016-2017
Ability of Osteopathic Structural Evaluation to Assess Gait Asymmetry. The primary objectives
of this proposal are to 1) determine whether a standard osteopathic postural assessment is
able to categorize participants with side-to-side limb asymmetries and 2) determine the acute
impact of an osteopathic manipulation on restoration of side-to-side symmetry during walking
gait in participants who are categorized as having lower extremity dysfunction.
Role: Co-Investigator Total Award: \$50,450

VCOM REAP Rowson and Brolinson (PIs) 2017-2018
Gender-Specific Differences in Concussion Tolerance. To measure and characterize
differences in biomechanical forces causing concussion between sexes, using an innovative
experimental approach that combines head impact measurement of real-world concussive
events with advanced video analysis.
Role: Co-Principal Investigator Total Award: \$62,500

VCOM/VMCVM One Health Grant Brolinson and Dahlgren (PIs) 2017-2018
In Vivo Eccentric Loading Therapy to Treat Achilles Tendinopathy. This project used a
validated mouse model to induce Achilles tendinopathy in vivo, followed by treatment with one
of four eccentric muscle loading strategies. Tendon outcomes were critically assessed using
ultrasound imaging, and histologic, gene expression, and biomechanical assays.
Role: Co-Principal Investigator Total Award: \$50,000

NIH 1R01NS094410-01A1 Duma (PI) 7/7/15 – 2/28/21
Biomechanical Basis of Pediatric MTBI Due to Sports Related Concussion. Development of a
quantitative model of the biomechanical basis of mild traumatic brain injury (MTBI) for a

pediatric population. The pediatric MTBI model enables translational research and the development of new clinical and therapeutic approaches to reduce the incidence and negative effects of MTBI in youth athletes.

Role: Co-Investigator

Total Award: \$3,306,869

NSF 1625163

Queen, Asbeck (PIs)

8/1/16 – 7/31/18

MRI: Acquisition of a Force-Measuring Treadmill for Biomedical Experimentation and Assistive Device Development. Acquisition of a force-sensing treadmill allowing for data to be collected on steady-state walking and running mechanics; and, in conjunction with 3-D motion capture, allowing the team to study lower extremity joint torque and power under multiple situations in many populations. Project goal is development of a toolbox of assistive device to aid patients with a wide range of gait pathologies.

Role: Senior Personnel

Total Award: \$160,000

AOA 1051715717

9/1/17 – 8/31/19

Head Impact Biomechanics, Concussion and Osteopathic Structural Diagnosis and Treatment. Determine the methodologic feasibility of studying the relationship between head impact biomechanics, the clinical diagnosis of sport related concussion and the application of osteopathic structural diagnosis and treatment in the clinical management of this complex issue.

Role: Principal Investigator

Total Award: \$147,970

VCOM REAP

Costa (PI) 7/1/18 – 6/30/19

Novel Cranial Mechanisms for Improving Brain Metabolic Waste Clearance in Alzheimer's Disease. This study examines the effect of cranial osteopathic manipulation (cCOMM) in transgenic rats as opposed to naturally aged rats used in prior experiments, in effort to provide a comprehensive understanding of cCOMM potential at the molecular, cellular, and behavioral level to affect substrates and symptoms of AD.

Role: Co-Investigator

Total Award: \$49,885

VCOM REAP

VandeVord and Brolinson (PIs) 7/1/18 - 6/30/19

Investigating the Physiological Effects of Cranial Osteopathic Manipulative Medicine on mTBI. Using a rodent model, this study investigates the basic questions of how molecules are circulated via the glymphatic system following cranial OMM treatment, and identifies the trafficking flow pattern as a result of this treatment.

Role: Co-Principal Investigator

Total Award: \$118,933

VCOM REAP

Madigan and Brolinson (PIs) 7/1/18 – 6/30/19

Innovative Strategies for Fall Prevention using Osteopathic Evaluation and Balance Training. Develop and apply improved methods to identify individuals at an increased fall risk, using osteopathic evaluations as a screening tool, and train and improve balance among these individuals, deploying the Virginia Tech Balance Training System

Role: Co-Principal Investigator

Total Award: \$102,898

NCAA-DOD Grand Challenge

Broglio, McAllister, McCrea (PIs) 1/1/15 – 5/31/18

Concussion Assessment, Research and Education (CARE) Consortium. A large-scale, multi-site study of the natural history of concussion in both sexes and multiple sports, addressing the

current gaps in knowledge, and shedding light on the neurobiological mechanisms of concussion symptoms and trajectory of recovery.

Role: Co-Investigator

Total Award: \$651,513

NCAA-DOD Grand Challenge Broglio, McAllister, McCrea (PIs) 8/10/18 – 8/31/21
CARE 2.0: Concussion Assessment, Research and Education (CARE) Consortium. The goal of this joint initiative is to enhance the safety of student-athletes and service members and differentiate between the effects of concussion, repetitive head impact, and sports participation with no history of either concussion or repetitive head impact exposure.

Role: Co-Investigator/VCOM Lead

Total Award: \$356,690

VCOM REAP Wang and Brolinson (PIs) 7/1/19 – 6/30/21
Development of an Image-Guided Focused Ultrasound System for the Non-invasive Treatment of Injured Tendons. The primary goals are to 1) develop a custom FUS system for treating healthy and injured murine tendons and 2) perform fundamental studies to determine the optimal acoustic pulsing schemes for stimulating tendon regeneration.

Role: Co-Principal Investigator

Total Award: \$50,000

VCOM REAP Rowson and Brolinson (PIs) 7/1/19 – 6/30/21
Mechanisms of Mild Traumatic Brain Injury in Snow Sports. Major goals: to better understand concussive biomechanics across the population and improve helmet design using environment-specific design.

Role: Co-Principal Investigator

Total Award: \$149,000

AOA 1915733 Costa (PI) 9/1/19 – 6/30/21
Clearance of Brain Metabolic Waste in a Natural Animal Model of Alzheimer's Disease by Cranial Osteopathic Manipulation. Since accumulations of brain derived metabolic waste induced neuroinflammation is the foundation for AD, our goal is to demonstrate an evidence based novel treatment strategy for inflammatory disease.

Role: Investigator

Total Award: \$124,999

HRSA T13HP319010100 Januchowski (PI) 9/1/18 – 8/31/23
VCOM Fellowship for Primary Care Transformation Leaders. The purpose of this program is to strengthen primary care and the corresponding workforce by training community-based practicing primary care physicians to become leaders in health care transformation and enhance teaching in community-based settings

Role: Faculty Key Personnel

Total Award: \$1,945,406

VCOM REAP Rowson and Brolinson (PIs) 7/1/20 – 6/30/21
Acute Effects of Routine Head Impact Exposure in Sports: Ocular Motor Function and Saliva-Based Biomarkers. Major goals: to develop and deploy methods that improve detection, reduce the incidence, and improve the treatment of concussion across the population. This project experienced delays due to the COVID-19 Pandemic.

Role: Co-Principal Investigator

Total Award: \$151,800

VCOM COHR Dahlgren and Brolinson (PIs) 7/1/20 – 6/30/22

A Novel Rehabilitative Loading Approach for Improved Musculotendinous Healing. Major goals: to study if eccentric exercise protocols that maintain or increase plantar-flexor contractile properties and enhance myotendinous junction structure and mechanics will achieve superior tendon healing responses.

Role: Co-Principal Investigator

Total Award: \$57,800

VCOM REAP

Brolinson and VandeVord (PIs) 7/1/21 – 6/30/22

Measuring interstitial fluid flow within the injured brain following Cranial Osteopathic Manipulative Medicine (cOMM). Our research will advance the mechanistic understanding of brain fluid flow before and after cOMM and the clearance of inflammatory molecules from the injured brain.

Role: Co-Principal Investigator

Total Award: \$134,300

VMCVM-IRC

Dahlgren (PI) 7/1/21 – 6/30/22

Transcriptomic changes induced by eccentric muscle-tendon loading using a murine model of Achilles tendinopathy. This study will identify differentially regulated signaling and metabolic pathways to guide the focused design of future studies aimed at better understanding the adaptive response to exercise.

Role: Co-Investigator

Total Award: \$20,000

AACOM Education Research Grant Award

7/1/23 – 12/31/24

Investigation of Suboccipital Release, Muscle Energy, and combination therapy, respectively evaluating their effect on vertebral artery blood flow. Major goals: A combination therapy of suboccipital release and muscle energy technique of the OA will lead to an increase in vertebral artery blood flow and a greater increase in vertebral artery blood flow.

Role: PI

ICTAS Collaborative Funding

Stitzel, Gayzik (Co-PIs) 7/1/23 – 12/31/25

Application of Quantitative OMT (qOMT): A Multidisciplinary Biomechanics Based Approach. Major Goals: Demonstrate the value of quantitative Osteopathic Manipulation Treatment (qOMT) using biomechanically and computationally derived data with a focus on quantitative metrics.

Role: Co-Investigator

Total Award: \$300,000

CDMRP: CMPRP Clinical Exploration Award

Wang (PI) 10/1/23 – 9/30/25

Machine Learning Analysis of Ultrasound Images for the Investigation of Thoracolumbar Myofascial Pain and Therapeutic Efficacy of Hydrodissection. Major Goals: Develop reliable, quantitative image analysis approaches to objectively classify images from subjects with active or latent TLF pain from those without pain and adapt these quantitative analysis tools to investigate and predict the efficacy of hydrodissection (separation of fascial planes via percutaneous injection of fluid) as a novel therapeutic treatment for chronic low back pain.

Role: Sub PI and Co-Investigator

Total Award: \$312,311

Active

AOA

Kozar (PI) 9/1/23 – 2/28/26

Assessment of the Therapeutic Efficacy of OMT on Chronic Low Back Pain: An Integrated

Sonographic and Machine Learning Analysis of Thoracolumbar Fascia Glide Impairment
Major Goals: Assess the preliminary clinical efficacy of OMT as a therapeutic treatment for CLBP of TLF origin and develop reliable, quantitative image analysis approaches to objectively distinguish images from subjects with TLF pain from those without pain.
Role: Co-Investigator Total Award: \$100,000

CDMRP CMPRP Wang (PI) 10/1/23 – 9/30/26
Machine Learning Analysis of Ultrasound Images for the Investigation of Thoracolumbar Myofascial Pain and Therapeutic Efficacy of Hydrodissection
Major Goals: The primary objectives of the proposed project are to (1) develop reliable, quantitative image analysis approaches to objectively classify images from subjects with active or latent TLF pain from those without pain and (2) adapt these quantitative analysis tools to investigate and predict the efficacy of hydrodissection (separation of fascial planes via percutaneous injection of fluid) as a novel therapeutic treatment for chronic low back pain.
Role: Co-Investigator Total Award: \$312,311

NIH, NCCIH 9/17/24 – 6/30/28
Cranial Osteopathic Manipulative Medicine Enhances Brain Fluid Flow Alleviating Neuroinflammation
Major Goals: Using TBI as a platform, the broad, long-term objective of this study is to evaluate the neuro-biological effect of cCOMM as a non-invasive approach to alleviate symptoms and enhance neural tissue recovery.
Role: PI Total Award: \$2,173,925

DOD, USUHS Denteh (PI) 9/23/24 – 9/22/26
Syndromic Surveillance to Address Emerging Biothreats
Major Goals: The objective of this proposed project is to develop an intuitive and user-friendly dashboard of AI-informed, high-level, real-time, actionable public health data, which will benefit the general public by tracking related groups of symptoms that may occur with or prior to official diagnosis.
Role: Sub PI and Co-Investigator Total Award \$3,934,715

AR3T Wang (PI) 11/1/24 – 1/31/26
Alliance for Regenerative Rehabilitation Research and Training
Focused Ultrasound Stimuli-Responsive Hydrogels for the Non-Invasive Rehabilitation of Injured Tendons
Major Goals: Investigate the efficacy of a FUS stimulation approach to release chondrolytic agents from an adhesive bioscaffold for tendinopathy treatment and elucidate cellular mechanisms underlying these responses.
Role: Co-Investigator Total Award \$75,000

VCOM-ICTAS 7/1/25 – 6/30/26
Development of Novel Focused Ultrasound Therapies for the Non-Invasive Treatment of Tendinopathies
Major Goals: This project will develop, using a pre-clinical turkey animal model, novel

tendinopathy treatments including the use of a high energy ultrasound approach to fragment bone deposits within tendons.

Role: Co-PI (Wang Co-PI)

Total Award \$60,000

VCOM-ICTAS

Varghese, Rowson (PIs) 7/1/25 – 6/30/26

Acute Effects of Routine Head Impact Exposure in Sports: Pupillary Light Reflex and Saliva-Based Biomarkers

Major Goals: Millions of Americans play sports, and many experience repeated head impacts that can cause mild brain injuries affecting thinking and memory. Our project studies male and female rugby players using instrumented mouthguards to track head impacts and measures saliva and pupil responses to detect early signs of injury. In the short term, we aim to understand how repeated head impacts lead to symptoms and biological changes; in the long term, our goal is to develop better ways to prevent, detect, and manage brain injuries, improving athlete safety and long-term brain health.

Role: Co-Investigator

Total Award: \$99,987

VCOM-VMCVM One Health

Chung, Bogers (PIs) 7/1/25 – 6/30/26

Feasibility of Histotripsy to Facilitate Non-Invasive Transverse Ligament Release Using a Naturally Occurring Equine Model

Major Goals: We propose to use the horse as a model to demonstrate that we can effectively and safely section the annular ligament non-invasively to relieve joint constriction. To do this, we will use limbs from horses who have died for unrelated reasons and clinically affected horses.

Role: Co-Investigator

Total Award: \$49,987

PUBLICATIONS

Peer-Reviewed Journal Articles

1. Pizza FX, Flynn MG, Sawyer T, **Brolinson PG**, Starling RD, Andres FF. Run Training versus Cross-Training: Effect of Increased Training on Circulating Leukocyte Subsets. *Medicine and Science in Sports & Exercise*. 1995 Mar; 27(3):355-62. PMID: 7752862.
2. Pizza FX, Flynn MG, Starling RD, **Brolinson PG**, Sigg J, Kubitz ER, Davenport RL. Run training vs cross training: Influence of increased training on running economy, foot impact shock and run performance. *Int J Sports Med*. 1995 Apr; 16(3):180-4. PMID: 7649709.
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6. **Brolinson PG**. Osteopathic Philosophy and Practice in Postgraduate Education. *JAOA*, 1998 Jun; 98(6):315.

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11. **Brolinson PG**. Resistance Exercise Cost-Effective for Osteoarthritis. *The Physician and sportsmedicine*. 2001 Mar;29(3). DOI: 10.3810/psm.2001.03.658.
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14. **Brolinson PG**, Cibor GM. Knowing more than the score: providing sideline medical care coverage for athletic competition. *JAOA*. 2001 Sep; 101(9):495-6.
15. Juhn MS, **Brolinson PG**, Duffey T, Stockard A, Vangelos ZA, Emaus E, Maddox M, Boyajian L, Henehan M. Position Statement. Violence and injury in ice hockey. *Clinical Journal of Sports Medicine*. 2002 Jan; 12(1):46-51. PMID: 11854591.
16. **Brolinson PG**. Obituary for Allen W. Jacobs, DO, PhD. *Clinical Journal of Sport Medicine*. 2002 Jan; 12(1):2. DOI: 10.1097/00042752-200201000-00003.
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32. Duma S, Stitzel J, Kemper A, McNally C, Kennedy E, **Brolinson PG**, Matsuoka F. Acquiring non-censored rib fracture data during dynamic belt loading. *Biomed Sci Instrum* 2006 Jan; 42:148-53. PMID: 16817600.
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 78. Kieffer EE, **Brolinson PG**, Rowson S. Dual-Task Gait Performance Following Head Impact Exposure in Male and Female Collegiate Rugby Players. *Int J Sports Phys Ther*. 2022 Apr 2;17(3):355-365. doi: 10.26603/001c.32591. PMID: 35391870; PMCID: PMC8975566.
 79. Dickerson M, Murphy S, Hyppolite N, **Brolinson PG**, VandeVord P. Osteopathy in the Cranial Field as a Method to Enhance Brain Injury Recovery: A Preliminary Study. *Neurotrauma Rep*. 2022;3(1):456-472. Published 2022 Oct 27. doi:10.1089/neur.2022.0039 PMID: 36337078.
 80. Hyland SS Jr, Maeso AD, Rogers M, Goforth M, **Brolinson PG**. Comparative analysis between operative and non-operative acetabular labral tear injuries in division 1 collegiate athletes. *Sci Rep*. 2023 Jun 10;13(1):9461. doi: 10.1038/s41598-023-36454-0. PMID: 37301848; PMCID: PMC10257656.
 81. Rowson S, Duma SM, Beckwith JG, Chu JJ, Greenwald RM, Crisco JJ, **Brolinson PG**, Duhaime AC, Mcallister TW, Maerlender AC. Correction: Rotational Head Kinematics in Football Impacts: An Injury Risk Function for Concussion. *Ann Biomed Eng*. 2023 Nov 16. doi: 10.1007/s10439-023-03410-y. Online ahead of print. PMID: 37973654.
 82. **Brolinson PG**, Stoner A, Rawlins F, Sutphin D, Michalak P. Synergizing One Health with Osteopathic Medicine: Towards a Unified Health Approach ('One HealthOM'). *BioScience*. 2025 Aug 21: biaf123, <https://doi.org/10.1093/biosci/biaf123>.
 83. Easley DC, Menarim BC, Grange RW, **Brolinson PG**, Wang VM, Dahlgren LA. Transcriptional Adaptations to Muscle Loading in a Murine Model of Achilles Tendinopathy. *J Orthop Res*. 2026;44(2):e70151. doi:10.1002/jor.70151. PMID: 41622025.
 84. Lewis KJ, Bent J, **Brolinson PG**, Keter D, Lumpkin E, Mundo J, Napadow V, Reed WR, Russell BS, Tang SY, Barbe MF. Mechano responsiveness of neuroimmune cross-talk in bone and joints: A narrative review with implications for force-based manipulations. *Review. Musculoskelet Sci Pract*. 2026 Dec 31:103470. doi: 10.1016/j.msksp.2025.103470. Online ahead of print. PMID: 41620320.

Publications In Review, Submitted, In Development

1. Moriarty S, Perera IR, VandeVord P, Hines D, Murphy S, Tobey H, **Brolinson PG**. Cranial Osteopathic Manipulative Medicine: Translating the Pressures of the Osteopathic Touch. Submitted to *Journal of Manual & Manipulative Therapy*.
2. Addis T, Hagen D, Redden D, Fremarek N, Fury M, Kozar A, Rogers M, **Brolinson PG**. Does Forearm Flexor Muscle Imbalance Contribute to Medial Elbow Injury in Baseball Pitchers? Submitted to *Clinical Journal of Sports Medicine*.
3. Easley DC, Grange RW, **Brolinson PG**, Gulian MH, Rogers EP, Cooper KR, Werre SR, Dahlgren LA, Wang VM. Muscle Loading Duration and Magnitude Differentially

Influence Tendon and Muscle Adaptation in a Preclinical Model of Achille Tendinopathy. *Journal of Orthopedic Research*. In Review. Jan 2026.

4. Perera IR, Moriarty S, VandeVord PJ, Hines D, Murphy S, Tobey H, **Brolinson PG**. Cranial Osteopathic Manipulative Medicine: Translating the Forces of Osteopathic Touch. In Development. (REAP-funded).

Book Chapters and Review Articles (Peer Reviewed)

1. Brennan FH, **Brolinson PG**. Fracture, Lateral and Medical Malleoli. In Bracker M, ed: 5-minute Sports Medicine Consult, Philadelphia: by Lippincott, Williams and Wilkins, 2001; 116-117.
2. **Brolinson PG**, Bodine KL. Sesamoid Dysfunction. 5-Minute Sports Medicine Consult, 2001 by Lippincott, Williams and Wilkins; 288-289.
3. **Brolinson PG**, Kerger S. Anterior Metatarsalgia (Submetatarsal Head Pain). 5-Minute Sports Medicine Consult. Lippincott, Williams and Wilkins, 2001; 22-23.
4. **Brolinson PG**, Gray G, Principle-Centered Rehabilitation. Principles and Practice of Primary Care Sports Medicine, 2001 by Lippincott Williams & Wilkins; 645-652.
5. **Brolinson PG**, Kozar AJ, Valvano KD. Osteopathic Approach to Sports Medicine. Foundations for Osteopathic Medicine, Second Edition, 2003 by Lippincott, Williams and Wilkins; 534-550.
6. Kalman VR, Sampson MJ, **Brolinson PG** (Contributing Editor). The Shoulder: 17.3 Common Conditions. Principles of Manual Sports Medicine, 2005 by Lippincott, Williams and Wilkins; 181-201.
7. **Brolinson PG** (Contributing Editor), Bolin DJ. Chapter 28: Bicycling Injuries. Principles of Manual Sports Medicine, 2005 by Lippincott, Williams and Wilkins; 474-484
8. **Brolinson PG**, Elliott D. Exercise Immunology. Clinics in Sports Med 2006.
9. **Brolinson PG**, Rogers M. The Functional and Kinetic Chain Evaluation of the Hip and Pelvis. The Hip and Pelvis in Sports Medicine and Primary Care, 2010 by Springer.
10. Heinking K, **Brolinson PG**, Goodwin TA. Large Joint Injury in an Athlete. Foundations of Osteopathic Medicine, 3rd ed., 2011 by Lippincott, Williams and Wilkins; 946-952.
11. **Brolinson PG**, Beato G. Exercise and Immune System. Encyclopedia of Sports Medicine, Lyle Micheli ed., SAGE Publications, 2010.
12. **Brolinson PG**, Beato G. Piriformis Syndrome. Encyclopedia of Sports Medicine, Lyle Micheli ed., SAGE Publications, 2010.
13. **Brolinson PG**, Beato G. Sacroiliac Pain. Encyclopedia of Sports Medicine, Lyle Micheli ed., SAGE Publications, 2010.
14. **Brolinson PG**, Rogers M, Edison J. The Functional and Kinetic Chain Evaluation of the Hip and Pelvis. The Hip and Pelvis in Sports Medicine and Primary Care, 2017.
15. **Brolinson PG**. Sacroiliac Joint Disorders. In Miller's Essential Orthopedics, 2nd Edition (M. Miller, J. Hart, J MacKnight, eds). Saunders Elsevier, Philadelphia, PA: June 2018.
16. Kuchera M, Heinking K, **Brolinson PG**, Goodwin T. Osteopathic Approach to Diagnosing and Treating Somatic Dysfunction in the Extremities. Foundations of Osteopathic Medicine: Considerations in Sports Medicine, Philosophy, Science, Clinical Applications and Research. Fourth Edition, 2019 by Lippincott, Williams and Wilkins; 1483-1516.
17. **Brolinson PG**, Kozar A, Valvano K. An Osteopathic Approach to Sports Medicine. In Foundations of Osteopathic Medicine: Considerations in Sports Medicine, Philosophy,

Science, Clinical Applications and Research. Fourth Edition, 2019 by Lippincott, Williams and Wilkens; 1458-1476.

18. Meduri C, Vlaisavljevich E, **Brolinson PG**, Wang VM. Ultrasound stimulation of tendon healing: current strategies and opportunities for novel therapeutic approaches. *Regenerative Rehabilitation – From Basic Science to the Clinic*. 2022 by Springer; 331-358.
19. Maerlender, A.; Smith, E.; **Brolinson, P.**; Urban, J.; Ajamil, A.; Rowson, S.; Stitzel, J.; Duma, S.M.; Crisco, J.; Greenwald, R. Weight and Age Interact to Modify Cognitive Effects of Head Acceleration Events after Two Seasons of Youth Football. *Preprints 2023*, 2023100944. <https://doi.org/10.20944/preprints202310.0944.v1>.
20. **Brolinson PG**, Kozar AJ, Valvano KD, Shitia M, Nakken N. Osteopathic Considerations in Sports Medicine; Chapter 87. In Heinking KP, Giusti RE, Hensel KL, Kuchera WA (eds) *Foundations of Osteopathic Medicine: Philosophy, Science, Clinical Applications, and Research*. 5th ed. Lippincott Williams & Wilkins; November 25, 2025; p1562-1595.

Non-Peer Reviewed Publications

1. **Brolinson PG**. Renal Failure in an Ultra-Endurance Athlete. *Sports Med in Primary Care*. 1995 Jan.
2. **Brolinson PG**. Effect of Ibuprofen Use on Muscle Soreness, Damage, and Performance: A Preliminary Investigation. *Sports Med in Primary Care*. 1995 Jan.
3. **Brolinson PG**. Immunization in Athletes. *Sports Med in Primary Care*. 1995 Jan.
4. **Brolinson PG**. Fluid Intake and Competition. *Sports Med in Primary Care*. 1995 Jan.
5. **Brolinson PG**. Efficacy of Ankle Bracing. *Sports Med in Primary Care*. 1995 Feb.
6. **Brolinson PG**. Exercise-Induced Muscle Injury: Mechanisms, Treatment, Prevention and Motor Control. *Sports Med in Primary Care*. 1995 Apr.
7. **Brolinson PG**. Delayed Onset Muscle Soreness. *Sports Med in Primary Care*. 1995 May.
8. **Brolinson PG**. Patellofemoral Instability and Anterior Knee Pain. *Sports Med in Primary Care*. 1995 Aug.
9. Brickner TE, **Brolinson PG**, Kruse RJ, Bodi SM, Whalen R, Heifferon MR. Shoulder Injury in Baseball. *Sports Med in Primary Care*. 1995 Sep.
10. **Brolinson PG**. When Snowflakes and Skiers Fall. *Sports Med in Primary Care*. 1995 Dec.
11. **Brolinson PG**. To Stretch or Not to Stretch: The Debate Continues. *Sports Med in Primary Care* 2(7):52-53. 1996 Jul.
12. **Brolinson PG**. Achilles Injury. *The Ohio Family Physician*. pg. 11. 1997 Feb.
13. **Brolinson PG**. Health Coalition Studies Health Promotion. *Managed Care Strategies* 4(2):1-10. 1997 Mar.
14. **Brolinson PG**. An Approach to Low Back Pain. Northwest Ohio Center for Sports Medicine, Sports Care, The Toledo Hospital. *Sports Med in Primary Care*. pg. 30-31. 1997 Apr.
15. **Brolinson PG**, Brennan FH. Beating the Odds of Exercise-Induced Asthma. *Sports Med in Primary Care*. 4(4):30-34. 1998 Apr.
16. **Brolinson PG**. Exercise: The Prevention Key for Post-Menopausal Women. *American Osteopathic Association National Osteopathic Medicine Week Newsletter*. 1998.
17. **Brolinson PG**. Exercise and Immune Function. *Sports Med Alert*. December 1999.

18. Manoogian SJ, Duma SM, **Brolinson PG**, Bussone W, Stitzel J, Goforth M, Donnenworth J, Greenwald R, Chu J, Crisco T. Measuring in situ Head Accelerations and Evaluating Clinical Outcomes in Collegiate Football Players. Proceedings of the 3rd Virginia Tech – Wake Forest University SBES Symposium. Winston-Salem, North Carolina. 2004.
19. Rawlins FA III, **Brolinson PG**, Tooke-Rawlins D. The Family Physician’s Role in Caring for the Patient with Traumatic Brain Injury. Osteopathic Family Physician News. 2009 Jan/Feb; 9(1):1, 6-9.
20. Seimetz CN, Kemper AR, Duma SM, **Brolinson PG**. Re: Re: An Investigation of cranial motion through a review of biomechanically based skull deformation literature. IJOM. 2013 Sept; 16(3):178-179. <https://doi.org/10.1016/j.ijosm.2013.07.007>.
21. Tooke-Rawlins D, **Brolinson PG**, Garner HR. Why do MDs get more research dollars than Doctors of Osteopathy? Scientific American. 2018 Nov 20.
22. **Brolinson PG**. Focus on Subspecialty Certification: Sports Medicine Specialists. American Osteopathic Board of Family Physicians Updates. Quarter 2, June 2025: <https://certification.osteopathic.org/family-physicians/quarterly-updates/>

Lay Publications, Letters to Editors, Selected Media:

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| 1991 May | TV Health Break - Exercise as Medicine |
| 1994 Mar | Noon News - Ask the Doctor. |
| 1994 Aug | WTOL Channel 11 - News clip. |
| 1994 Aug | WTOL Channel 11 - Sports Care Segment, Accident |
| 1995 May | WTOL Channel 11 - Rowing Regatta News Coverage |
| 1995 Dec | WTOL Channel 11 - First at Five |
| 1996 Jun | WTOL Channel 11 - News Segment in Sports Medicine |
| 1996 Jun | WTOL Channel 11 - Sports Medicine for the Weekend Warrior |
| 1996 Aug | Shape Magazine - Bikini Bottom |
| 1998 Aug | WTOL Channel 11 - Sports Performance Supplements Story |
| 1999 Aug | Nightline with Connie Chung – Gymnastics Cervical Spine Trauma at the 1998 Goodwill Games |
| 2000 Sep | The Blade. There’s Often a Twist in Care by Osteopathic. |
| 2000 Sep | Healthy Living News - Run, Forrest, Run! |
| 2000 Oct | Healthy Living News - Back on Track with Solid Ankles |
| 2001 Aug | Muscle and Fitness - Everything in Moderation |
| 2003 | Discovery Channel Science Segment - Head Accelerations |
| 2003 | FOX Channel 5 Evening News - Concussions In Sports |
| 2004 Mar | Technology Today with Carol Jennings, NCTC TV - Concussions, Head Accelerations & Sports |
| 2005 Dec | The Sports Health Highlight with Host Dr. Vincent Disabella – Concussions in Sports |
| 2010 Jul | WDBJ Channel 7 – Volunteers keep the Greenbrier Classic on course |
| 2010 Sep | NY Times article – Football Practice Seen as Starting Point to Reduce Head Injuries |
| 2010 Sep | NPR Morning Report – Scrutiny of Concussion Risk in Football Intensifies. |
| 2010 Nov | Relaxed Fit E-Zine – How do Football Players Get Concussions? They Wear Helmets, Don’t They? |

2011 May WSLs Channel 10 – Virginia Tech ranks football helmets’ concussion safety
2011 May MIT Technology Review article – Images of a Hard-Hitting Disease
2011 Jul ESPN.com Page 2 article – Virginia Tech Helmet Research Critical
2011 Jul WDBJ Channel 7 – Providing Medical Care at Greenbrier “Like Herding Cats”
2011 Aug Roanoke Times article – The Greenbrier Announces Medical Institute Plans
2012 Sep Stone Phillips Reports – Hard Hits, Hard Numbers: The First Study of Head Impacts in Youth Football (broadcast nationally on The PBS NewsHour)
2013 Jan WSLs Channel 10 – VCOM helping train Virginia Tech Athletes for Medical Careers
2013 Feb Collegiate Times – Helmet Research aims at reducing concussions
2013 Nov NFL Networks – Health of the Game: Helmet Technology
2018 Feb Roanoke Times – Medical Breakthrough Born in Blacksburg

PROFESSIONAL PRESENTATIONS

1999 May Exercise & Physical Fitness for Women Over 40, WGTE Women’s Health Forum. Seagate Center, Toledo, OH
2001 May Headaches in Athletes, Toledo Academy of Pharmacy, Courtyard at the Navy Bistro, Toledo, OH
2001 May Bugs and Drugs, Toledo Academy of Medicine, The Toledo Zoo, Toledo, OH
2003 May SI Dysfunction in Sports, Carilion Roanoke Memorial Hospital, Roanoke, VA
2003 Sep Pain Management in Sports, Mercer County Medical Society Meeting, Bluefield Regional Medical Center, Bluefield, WV
2003 Sep Pain Management in Sports, Danville-Pittsylvania County Medical Society Meeting, Danville, VA
2003 Sep Pain Management in Sports, Appomattox, VA
2003 Sep The Pre-participation Sports Physical, Halifax Regional Hospital Medical Staff Meeting, Halifax, VA
2004 Jan Evaluation and Treatment of Respiratory Infections, Bluefield Regional Medical Center, Bluefield, WV
2004 Jan Pain Management in Sports, Lynchburg, VA
2004 Mar Respiratory Infection Resistance and Rational Therapy, Smyth County Medical Society Meeting, Wytheville, VA
2004 Mar Pain Management in Sports, Hampton Roads, VA
2004 May Pain Management in Sports and Sports Psychology: What Works and Why, Philippine Medical Society Spring Meeting, Hampton Roads, VA
2004 May The Osteopathic Approach to the Patient, Roanoke Carilion Medical Center. Roanoke, VA
2005 Apr New Trends in Sports Medicine, Portsmouth Academy of Medicine, Norfolk, VA
2007 Mar Meeting the Needs of Patients with Osteoarthritis: Focusing on the Effectiveness and Safety of Treatment Modalities, Continuing Medical Education, Dearborn, MI
2007 Jul Arthritis Pain and Inflammation in Sports Medicine, Christiansburg, VA
2008 Feb Arthritis Pain and Inflammation in Sports Medicine, Blacksburg, VA
2008 Feb Arthritis Pain and Inflammation in Sports Medicine, Christiansburg, VA
2008 Mar Arthritis Pain and Inflammation in Sports Medicine, Pulaski, VA

2008 Mar Arthritis Pain and Inflammation in Sports Medicine, Bristol, VA

2008 Mar The NSAID Debate: Exploring the Risks and Benefits, Roanoke, VA

2008 Jul The NSAID Debate: Exploring the Risks and Benefits, Lebanon, VA

2009 Sep The Biomechanical Basis for Mild Traumatic Brain Injury, Southwest Virginia Governor's School

2009 Sep Experiences as an Olympic Physician & Helmet Safety, Roanoke Regional Chamber of Commerce, Roanoke, VA

2011 Jan Exercise is Medicine, AARP Chapter Meeting, Blacksburg, VA

2012 Mar What is Osteopathic Sports Medicine, College-Wide Speaking engagement, College of Charleston, Charleston, SC

2013 Sep OMM for Upper Extremities, Danville Regional Medical Center, Danville, VA

2014 Feb OMM FP Board Review, Danville Regional Medical Center, Danville, VA

2014 Sep Grand Rounds: Concussion, The Ohio State University, Columbus, OH

2014 Nov Grants and Research Overview and Institutional Agenda for Educational Research, VCOM Research Retreat, Mooresville, NC, November 2014.

2015 Sep Publishing and Presenting (ACGME requirements), VCOM Research Retreat, Spartanburg, SC, September 2015.

2016 Oct VCOM Research Update, VCOM Research Retreat, Mooresville, NC, October 2016

2017 Feb Head impact biomechanics, concussion and clinical implications, Liberty University COM, Lynchburg, VA

2017 Mar Head impact biomechanics, concussion and clinical implications, Rochester Regional Health, Rochester NY

2017 Nov Grand Rounds, University of Miami Miller School of Medicine, Head Impact Biomechanics, Sensors and Concussion Research Update; November 2, 2017

2017 Nov State of Research at VCOM, VCOM Research Retreat, Asheville, NC, November 2017.

2018 Feb Scholarly Activity and Residency Research Overview, Resident Research Symposium Meetings at Grand Strand Medical Center; February 2018

2019 Feb Exercise and the Immune System, VCOM Sports Med Fellowship Didactics. Blacksburg, VA, February 2019

2018 Dec VCOM 2018 Research Retreat: State of Research at VCOM, VCOM Biomedical Research Retreat; Podium Presentation; December 2018

2019 Jun VCOM Caribbean and Central American Global Clinical, Research and Education Potential for Collaboration with SOUTHCOM, US Southern Command Meeting; June 2019

2019 Jul Is That Head Injury a Concussion, ACC and AAC Officials Meeting. Charlotte, NC, July 2019

2019 Nov The 6th Annual VCOM 2019 Research Retreat State of Research at VCOM, VCOM Research Retreat; Charlotte, NC: November 2019

2020 Jan GI Dysfunction in Athletes, VCOM Sports Med Fellowship Didactics. Blacksburg, VA, January 2020

2020 Feb Mild Traumatic Brain Injury, Evaluation and Treatment, LewisGale Medical Center Internal Medicine Residency Training Program. Salem, VA, February 2020

2020 Apr	Concussion: Treatment Considerations and Return to Play, Virginia Tech Concussion Seminar. Blacksburg, VA, April 2020
2021 Mar	Human Performance: Osteopathic Perspectives on Research and Clinical Practice, Keynote Address. Association for Military Osteopathic Physicians and Surgeons; AMOPS, Annual Meeting, Uniformed Services University, March 2021
2022 Mar	Osteopathy in the Cranial Field as a Method to Enhance Brain Injury Recovery: A Preliminary Study, Research Podium Presentation. 2022 AAO & AOASM Joint Convocation, March 2022 (Winner, Best Research Podium Presentation)
2023 Nov	MSK Ultrasound Machine Learning approaches for Low Back pain evaluation and treatment. With AI Kozar. 2023 VCOM Research Retreat, VCOM-Auburn Campus, Auburn, AL, November 4, 2023.
2024 Mar	U.S. Ski Team Travel, Medical Issues, and Helments in Snow Sports. Presented at the 2024 Winter Sports Medicine Conclave. Appalachian State University, Boon, NC, March 9, 2024.
2024 May	Advisory Council Working Group on Spiritual Health. Presented at the Open Session of the 87th National Advisory Council for Complementary and Integrative Health (NACCIH), May 17, 2024. Presenter: Helene Benveniste, MD, PhD, authors: Benveniste H, Brolinson PG, Coghill R, Dickerson D, Lavretsky H, Sibinga E, Soumyanath A, Shinto L, Schmidt M.
2024 Jun	GI Dysfunction in Athletes. Presented at the Spartanburg Regional Health Care System (SRHCS) 10 th Annual Sports and Medicine Symposium. Spartanburg, SC, June 2024.
2025 Feb	USA Ski/Snowboard and Ski/Snowboard Helmet Research Update. Presented at the 2025 Winter Sports Medicine Conclave. Appalachian State University, Boone, NC, February 17, 2005.
2025 Feb	Via Learn Management System (VLMS). Dana Farber Cancer Institute and Edward Via College of Osteopathic Medicine, Spartanburg, SC, February 5, 2025.
2025 May	Invent the Future. Lecture at American Osteopathic Academy of Sports Medicine Clinical Conference; May 1, 2025; Asheville, NC.
2025 Oct	Exploring An Innovation Opportunity: VCOM Clinical Research Network Expansion. Pfizer Research Discussion; October 7, 2025.

PUBLISHED ABSTRACTS/PRESENTATIONS

1. Flynn MG, Pizza FX, **Brolinson PG**, Starling RD, Nauerth HJ, Davenport R. Hormonal Responses to Excessive Training: Influence of Cross Training. *Medicine & Science in Sports & Exercise*. 24(5):S101, May 1992.
2. Sigg JA, Flynn MG, Pizza FX, Armstrong CW, **Brolinson PG**. Excessive Training and Foot Impact Shock in Competitive Distance Runners. *Medicine & Science in Sports & Exercise*. 24(5):S130, 1992 May.
3. Carroll KK, Flynn MG, **Brolinson PG**, Hall HL, Weideman C, Fruth L, Kooiker BA. Lymphocyte Mitogenesis and Natural Cell-Mediated Cytotoxicity (NCCM) Following a 24 Hour Run. *Medicine & Science in Sports & Exercise*. 25(5):S123, 1993 May.

4. Fahlman M, Flynn MG, **Brolinson PG**, Carroll K, Kooiker BA, Brickman T, Carl D, Choi DH. Mood State and Subjective Responses to a 24-hour race. Midwest ACSM Winter Conference. Boyne Falls, MI. February 1994.
5. Fahlman H, Flynn MG, **Brolinson PG**, Carroll KK, Kooiker BA, Brickman T, Carl DL, Choi DH. Psychological and Endocrine Responses to a 24 Hour Road Race. *Medicine & Science in Sports & Exercise*. 26(5):S181, 1994 May.
6. Freeman S, **Brolinson PG**. Rhabdomyolysis induced acute renal failure in an ultra-endurance athlete presenting as an upper gastrointestinal bleed. *Medicine and Science in Sports and Exercise*. 1994 May; 26(Supplement). DOI:10.1249/00005768-199405001-00617.
7. Carroll KK, Hall HL, Kooiker BA, Weldoman CA, Kasper CM, **Brolinson PG**. Cross Training, Indices of Training Stress and Performance. *Medicine & Science in Sports & Exercise*. 26(5):S153, 1994 May.
8. Hall HL, Flynn HG, Carrol KK, **Brolinson PG**, Shapiro S, Kooiker BA. The Effects of Excessive Training and Detraining on Testicular Function. *Medicine & Science in Sports & Exercise*. 26(5):S181, 1994 May.
9. **Brolinson PG**. Heat Illness: Football". ACSM National Meeting, Indianapolis, IN. 1994.
10. **Brolinson PG**. Shoulder Injury in Baseball Players. AOASM Annual Meeting, Orlando, FL. 1995.
11. Carroll KK, Flynn MG, Bodary PF, Bushman BA, Choi DH, Weideman CA, Brickman TM, Bouillon LE, **Brolinson PG**. Resistance Training and Immune System Function of Young Men. *Medicine & Science in Sports & Exercise*. 27(5):S176, May 1995.
12. Weideman CA, Flynn MG, Carroll KK, **Brolinson PG**, Freeman SD, Faulman M, Jeffery KM, Bouillon LE, Cooper JC. Resistance Training and Immune Function in Elderly Women. *Medicine & Science in Sports & Exercise*. 27(5):S176, May 1995.
13. **Brolinson PG**. Fluid and Electrolyte Balance During an International Distance Triathlon. ACSM Midwest Regional Chapter Meeting, St. Charles, IL. 1995
14. Stuber LL, Lager MS, Reeves BD, Miller DR, Andres FF, **Brolinson PG**. Effect of a Corporate Weight Management Challenge. Annual Meeting, The Midwest Regional Chapter of ACSM. Pheasant Run. St. Charles, IL. October 1995.
15. Flynn MG, Fahlman M, Braun WA, Lambert CP, Bouillon LE, Jeffrey KM, **Brolinson PG**, Armstrong CA. Resistance Training and Immune Function in Elderly. *Medicine & Science in Sports & Exercise*. 29(5):256, 1997 May.
16. Maccoux DA, Freman SC, **Brolinson PG**, Gunter MJ. Syncope – Football. *Medicine and Science in Sports & Exercise*. 29(5) S67-68, 1997 May.
17. **Brolinson PG**, Maccoux DA, Gunter MJ. Groin Pain: Football. *Medicine and Science in Sports & Exercise*. 29(5): S30, 1997 May
18. Gunter MJ, Maccoux DA, **Brolinson PG**, Saddemi S. Ankle Pain – Basketball. *Medicine and Science in Sports & Exercise*. 29(5): S-185, 1997 May.
19. **Brolinson PG**, Emmons MT. Injury - Soccer. *Medicine and Science in Sports & Exercise*. 31(5):S351, 1999 May.
20. Snyder AR, McLoughlin TJ, **Brolinson PG**, Pizza FX. The Effect of Electrical Muscle Stimulation on Markers of Muscle Injury. *Medicine & Science in Sports & Exercise*. 33(5):S196, 2001 May.

21. Anning JH, Morgan AL, **Brolinson PG**, Arnos PM. Influence of running and cycling on hydrostatic and oncotic forces associates with plasma volume shifts. *Medicine and Science in Sports & Exercise*. 2002 May; 34(5):S1:S113.
22. Bolin DJ, **Brolinson PG**. Exercise Associated Collapse-Softball. *Medicine and Science in Sports & Exercise*. 35(5) S1: S209, 2003 May.
23. Duma S, Manoogian S, Bussone WR, **Brolinson PG**, Goforth MW, Donnenwerth JJ, Greenwald RM, Chu JJ, Crisco JJ. Measuring Real Time Head Accelerations in Collegiate Football Players. *J Proceedings ASB Conf*. 2004.
24. **Brolinson PG**. Head and Neck Injury. Clinical Case. American College of Sports Medicine Annual Meeting, New Orleans, LA, May 2007. *Medicine & Science in Sports & Exercise*: May 2007 - Volume 39 - Issue 5 - p S109 doi: 10.1249/01.mss.0000273351.43146.20.
25. **Brolinson PG**. Incidence and Rate of Colonization of Community-Acquired Methicillin-Resistant Staphylococcus aureus Colonization for In-Season Collegiate Athletes. AOASM, April 30-May 3, 2008.
26. **Brolinson PG**. Knee Pain – Walk/Jog/Run. Clinical Case. American College of Sports Medicine Annual Meeting, Indianapolis, IN, May 2008. *Medicine & Science in Sports & Exercise*: May 2008 - Volume 40 - Issue 5 - p S140 doi: 10.1249/01.mss.0000322067.39200.45.
27. Duma S, Rowson, S, Hardy W, **Brolinson PG**. Biomechanical Basis of Mild Traumatic Brain Injury. AOASM, Las Vegas, NV, July 2008.
28. Beckwith JG, Chu JJ, Crisco JJ, McAllister TW, Duma SM, **Brolinson PG**, Greenwald RM. Severity of head impacts resulting in mild traumatic brain injury. *Am Soc Biomech*. 2009 Jan;1144. Presented at AOASM, Las Vegas, NV, July 2008.
29. Bennett G, **Brolinson PG**, Goforth M, Heil J. Implementing Lessons Learned in Response to the VT Shootings: Sports Medicine Team Perspectives. Conference: Association for Applied Sport Psychology, Providence, RI, October 2010.
30. Lockhart T, Yeoh H, Songra R, Haynes C, **Brolinson PG**. Effects of Orthotics on Dynamic Stability in the Elderly. Biomedical Engineering Society (BMES) Annual Meeting, Hartford, CT, 2011.
31. Prom S, Roger MBE, Farmer J, **Brolinson PG**. Elbow Discomfort in a Female Lacrosse Athlete. AOASM Annual Meeting, Providence RI, April 2011.
32. Dyer CS, **Brolinson PG**. An Unusual Cause of Shoulder Pain in a Collegiate Football Player. AOASM Annual Meeting, Providence RI, April 2011.
33. Dyer CS, **Brolinson PG**, Wennell R. Evaluation of Postural Stability among NCAA Division I College Athletes using IsoBALANCE 2.0 Force Plate Technology: An Analysis of VT Football Players over the 2009 and 2010 Seasons. AOASM Annual Meeting, Providence, RI, April 2011.
34. Doolan, AW, **Brolinson PG**, Rogers MB, Collins SP. Neck Pain in a Collegiate Wrestler. ACOFP Annual Meeting, San Antonio, TX, March 2011.
35. Aldret SN, **Brolinson PG**. Effect of Concussion on Postural Stability among NCAA Division I College Athletes using IsoBALANCE 2.0 Force Plate Technology: An Analysis of VT Football Players over the 2009 and 2011 seasons. ACOFP Annual Meeting, Kissimmee FL, March 2012.
36. Day DD, **Brolinson PG**, Rogers MB, Goforth M, Dietter D. Syncope – A Difficult Return to Play Decision. AOASM Annual Meeting, Louisville KY, March 2012.

37. McCrady BM, Schafer J, Horvarth S, **Brolinson PG**, Sukpraprut S, Rogers MB. Effectiveness of Iron Supplementation and Diet Change on Ferritin Levels Among Female Division I Athletes. AOASM Annual Meeting, Louisville KY, March 2012.
38. Sparks, NL, **Brolinson PG**, Sukpraprut S, Goforth M. A Comparison of the Numbers of Medical Illness and Orthopedic Injury Encounters at an NCAA Division I Athletics Program. AOASM Annual Meeting, Colorado Springs, CO, March 2013.
39. Wilhelm A, **Brolinson PG**, Williams RT. Platelet-Rich Plasma Treatment for Chronic Posterior Tibial Tendon Dysfunction. AOASM Annual Meeting, Colorado Springs, CO, March 2013.
40. Andrews CK, **Brolinson PG**, Sukpraprut S, Engorn J, Goforth M. Hypertension in Division I NCAA Athletes. AOASM Annual Meeting, Colorado Springs, CO, March 2013.
41. Keating MB, Rawlins J, **Brolinson PG**. Medical Coverage of The Greenbrier Classic PGA Tour Event. AOASM Annual Meeting, Colorado Springs, CO, March 2013.
42. Beckwith JG, Bolander RP, Greenwald RM, Songbai J, McAllister TW, Chu JJ, Crisco JJ, Wilcox BJ, Duma SM, Rowson S, Broglio SP, Guskiewicz KM, Mihalik JP, Anderson S, Schnebel B, **Brolinson PG**, Collins MW. Estimated Brain Tissue Response Following Impacts Associated with and Without Diagnosed Concussion. 6th Int'l Symposium on Safety in Ice Hockey, January 2014.
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44. Jackson J, Ekwueme E, Pekkanen A, **Brolinson PG**, Rylander MN, Freeman JW. Single Walled Carbon Nanohorns Modulate Extracellular Matrix Response in Tendons and Ligaments. Biomedical Engineering Society (BMES) Annual Meeting, San Antonio TX, October 2014.
45. Fino PC, **Brolinson PG**, Lockhart TE, Nussbaum MA. Non-straight gait shows greater dual-task cost than straight gait in recently concussed athletes compared to matched controls: A preliminary investigation. American Society of Biomechanics 2015 Midwest Regional Meeting, Akron OH; February 2015.
46. Becker L, Fino PC, **Brolinson PG**, Griesemer B. Concussions increase the frequency of lower extremity sprains and strains in the first 90 days post-concussion. AOASM 30th Annual Clinical Conference, Philadelphia PA, April 2015.
47. Fino PC, Weirath MD, Soangra R, Lockhart TE, **Brolinson PG**. Balance Measurements of a Smartphone at the Upper Arm Compared to the Balance Error Scoring System. 39th Annual Meeting of The American Society of Biomechanics, Columbus OH, August 2015.
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51. Fino PC, Nussbaum MA, **Brolinson PG**. Interpreting decreased high-frequency center-of-pressure complexity in recently concussed asymptomatic athletes. Poster present at: The 40th Annual Meeting of the American Society of Biomechanics. 2016 Aug 2-5; Raleigh, NC.
52. Rezvani SN, Groen A, **Brolinson PG**, Grange RW, Wang VM, Passive Tensile and Viscoelastic Properties of Murine Hindlimb Flexor Muscles. Orthopaedic Research Society Annual Meeting, New Orleans, March 2018.
53. Tobey H, Bledsoe D, Lucus T, Mykins M, Campbell C, Berr S, Sasser T, Molinos C, Helm R, Shan L, **Brolinson PG**, Klein B, Costa B. A Non-Pharmacological Therapy Improves Spatial Memory, Waste Clearance and Neurotransmission in Naturally Aged Rat Model of Alzheimer's Disease. Neuroscience 2018, Scientific Abstract, 2018-S-3548-SfN, April 2018.
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55. Eck B, Zabinsky J, Goforth M, Shan L, Rogers M, **Brolinson PG**. Trends of caffeine use in an intercollegiate athletic population. 33rd Annual AOASM Annual Conference. 2018 May 2: Columbus, OH.
56. Rezvani S, Grange R, Dahlgren L, **Brolinson PG**, Wang V. Development of A Novel Eccentric Muscle Loading Approach to Investigate Achilles Tendon Adaptation. Biomedical Engineering Society (BMES) Annual Meeting, Atlanta, GA, October 2018.
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58. Hyppolite N, **Brolinson PG**, Speicher L. Seizure or Somatic Dysfunction: A Case of Long-Term Recovery following Craniotomy for Brain Tumor Resection in a Division I Student Athlete. Poster Present at: AAO Convocation 2019. Orlando, FL: March 2019.
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60. Campolettano E, **Brolinson PG**. Development of a Concussion Risk Function for a Youth Population Using Head Linear and Rotational Acceleration. Poster Present at: Biomedical Engineering Society (BMES) Annual Meeting. Abstract: 2758, Philadelphia, Pa: October 2019.
61. **Brolinson PG**, Hyppolite N, Dickerson M, Murphy S, VandeVord P. Osteopathy in the cranial field as a method to enhance brain injury recovery: A preliminary study. Poster presented at AOA OMED. October 25-28, 2019; Baltimore, MD.
62. Tripathi A, Dhanju S, Rowson S, Smith E, Goforth M, Rogers M, **Brolinson PG**. Greater Accuracy in Concussion Diagnosis in Collegiate Athletes through the use of Blood Brain Biomarkers. Poster presented at the Annual Sports Concussion Conference. July 2019: Indianapolis, IN. Neurology, 2019, Oct1: 93(14S1). DOI: <https://doi.org/10.1212/01.wnl.0000580868.48726.59>.

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64. Rezvani SN, Grange RW, Dahlgren LA, **Brolinson PG**, Wang VM. Eccentric Muscle Loading Improved Tendon Biomechanical Properties in a Murine Model of Achilles Tendinopathy. AR3T Annual Meeting, Charlottesville, VA, February 2020.
65. Rezvani SN, Grange RW, Dahlgren LA, **Brolinson PG**, Wang VM. Eccentric Muscle Loading Improved Tendon Biomechanical Properties in a Murine Model of Achilles Tendinopathy. Orthopaedic Research Society Annual Meeting. February 2020, Phoenix, Arizona.
66. Craig M, **Brolinson PG**, Rogers M, Griesmer B, Fino P, Fino N, GoForth M. Pre-Competition Manipulation and Injury Risk Among Virginia Tech Football Players During the 2015-2017 Football. 35th Annual AOASM Annual Conference. May 2020: Anaheim CA. (2020 Research Poster Award Winner).
67. Keim SB, **Brolinson PG**, Biehl SJ, Wilkens K, Bower G, Begonia M, Rowson S. Assessing the Performance of MIPS in Snowsport Helmets Under Varying Impact Surface Friction Conditions. Summer Biomechanics, Bioengineering and Biotransport Conference. June 2020: Vail, CO.
68. Meduri C, Simon A, DeKoninck L, Coffey M, Claros E, Velazquez M, Vlasisavljevich E, Wang VM, **Brolinson PG**, McCrady B. Design of a Focused Ultrasound System for the Non-Invasive Treatment of Injured Tendons. Biomedical Engineering Society Annual Meeting, October 2020, Virtual Meeting, Abstract 580.
69. Keim SB, **Brolinson PG**, Biehl SJ, Wilkens K, Bower G, Begonia M, Rowson S. Assessing the Performance of 2015 in Snowsport Helmets Under Varying Impact Surface Friction Conditions. Biomedical Engineering Society Annual Meeting. October 2020: Virtual Meeting, Abstract: #343.
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71. Kieffer EE, **Brolinson PG**, Rowson S. Elevated In-Season Presentation of Concussion-Like Symptoms in the Absence of Diagnosed Concussion. Neurology, Nov 2020, 95 (20 Supplement 1) S3; DOI: 10.1212/01.wnl.0000719884.09273.f0.
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73. Maeso AD, Hyland S, Rogers M, **Brolinson PG**. Acetabular Labral Tears in Division 1 Collegiate Athletes: A Comparative Analysis Of Operative Versus Conservative Management. Abstract presented at the AOASM 2021 Clinical Conference, April 30-May 2, 2021.
74. Craig M, Fino N, MS3, Fino P, Rogers M, Griesemer B, Goforth M, **Brolinson PG**. Pre-competition manipulation and musculoskeletal injury risk among Division I collegiate football players during the 2015-2017 football seasons. Presented at the American

- Academy of Physical Medicine and Rehabilitation's Program Planning Committee and Evidence Committee. Nashville, TN; November 11-14, 2021.
75. Craig M, Beran A, **Brolinson PG**, **Rogers M**, Fino N, Fino P, Griesemer B, Goforth M. Pre-competition manipulation and concussion risk among Virginia Tech football players during the 2018-2017 football seasons. Presented at the American Academy of Osteopathy & American Osteopathic Academy of Sports Medicine Convocation. Orlando, FL; March 23-27, 2022.
 76. Flynn-Smith G, Roldan A, **Brolinson PG**, Redden D, Barrand C, Daniels V, White K, Kozar A, Wang V. Identifying Image Texture Biomarkers of Non-specific Low Back Pain Using Quantitative Ultrasound Imaging. Poster presented at the 2022 Military Health System Research Symposium (MHSRS). Kissimmee, FL: September 12-15, 2022.
 77. Meduri C, Salazar S, **Brolinson PG**, Vlaisavljevich E, Want VM. Mechanical effects of low-intensity FUS pulsing on murine Achilles tendons. Abstract presented at the 8th Annual Symposium on Focused Ultrasound. Bethesda, MD: October 23-28, 2022.
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 79. Shitia M, Beran A, Larkin R, Goforth M, Rogers M, Brolinson PG. Prevalence of Electric Scooter Injuries in Athletes at an NCAA Division I University: A Retrospective Review. Presented at the AOASM 2023 Clinical Conference. April 26-29, 2023.
 80. Easley DC, Gulian M, Cooper K, Grange RW, Brolinson PG, Dahlgren LA, Wang VM. Treatment Duration and Load Magnitude Differentially Affect Biomechanical Properties in a Preclinical Model of Achilles Tendinopathy. Presented at the Orthopaedic Research Society meeting. February 2-6, 2024, Long Beach CA.
 81. Flynn-Smith G, Roldan A, Wood J, Brolinson PG, Redden D, Barrand C, Daniels V, White K, Kozar A, Wang V. Utility of Radiomics Features For Automated Clinical grading of Ultrasound Images of the Thoracolumbar Fascia For Evaluation Of Nonspecific Low Back Pain. Presented at the Orthopaedic Research Society meeting. February 2-6, 2024, Long Beach CA.
 82. Easley DC, Menarim BC, Gulian MH, Grange RW, Brolinson PG, Dahlgren LA, Wang VM. Treatment Duration and Load Magnitude Differentially Affect Tendon Healing in a Preclinical Model of Achilles Tendinopathy. Presented at the ORS Tendon Conference 2024, Mechanism to Therapy- Emerging Technologies and Therapeutic Outcomes. May 30 – June 1, 2024, Mayo Clinic, Rochester, MN.
 83. Flynn-Smith G, Roldan A, Wood J, **Brolinson PG**, Redden D, Barrand C, Daniels V, White K, Kozar A, Wang V. Utility of Radiomics Features For Automated Clinical Grading of Ultrasound Images of the Thoracolumbar Fascia For Evaluation of Nonspecific Low Back Pain. Poster presented at the 2024 Military Health System Research Symposium (MHSRS). Kissimmee, FL: August 26-29, 2024.
 84. Murphy S, Dickerson M, Talty C-E, **Brolinson PG**, VandeVord P. Osteopathy in the Cranial Field as a Method to Enhance Brain Injury Recovery: A Preliminary Study. Poster presented at the 2024 Military Health System Research Symposium (MHSRS). Kissimmee, FL: August 26-29, 2024.

85. Addis T, Hagen D, Redden D, Fremarek N, Fury M, Kozar A, Rogers M, **Brolinson PG**. Forearm Flexor Strength as a Predictive Risk Factor for Ulnar Collateral Ligament Injury in Baseball Athletes. Presented at the American Osteopathic Association OMED Conference. San Antonio, TX: September 20-22, 2024.
86. Easley DC, Menarim BC, Grange RW, **Brolinson PG**, Wang VM, Dahlgren LA. Eccentric Muscle Loading Induces Positive Alterations to the Transcriptome in a Murine Model of Tendinopathy. Presented at the Orthopaedic Research Society 2025 Annual Meeting. Phoenix, AZ: February 7-11, 2025.
87. Easley DC, Menarim BC, Grange RW, **Brolinson PG**, Wang VM, Dahlgren LA. Treatment Duration and Load Magnitude Differentially Affect Tendon Healing in a Preclinical Model of Achilles Tendinopathy. Presented at the Orthopaedic Research Society 2025 Annual Meeting. Phoenix, AZ: February 7-11, 2025.
88. Flynn-Smith G, Risov D, Fremarek N, Chung M, Barnett J, Mattis J, Reagan A, Farooq F, **Brolinson PGB**, Kozar A, Wang V. Active and Passive Gliding Properties of the Thoracolumbar Fascia in Individuals with Low Back Pain. Presented at the Orthopaedic Research Society 2025 Annual Meeting. Phoenix, AZ: February 7-11, 2025.
89. Risov D, Farooq F, Carlson D, Satoskar C, Reagan A, Mattis J, Barnett J, Fremarek N, **Brolinson PG**, Chung M, Flynn-Smith G, Wang V, Kozar A. Shear Wave Elastography of the Thoracolumbar Fascia (Tlf) As A Biomarker for Chronic Low Back Pain (Clbp). American Academy of Osteopathy Convocation. Orlando, FL: March 26-28, 2025.
90. Carlson D, Farooq F, Risov D, Satoskar C, Reagan A, Mattis J, Barnett J, Pedreira M, Fremarek N, **Brolinson PG**, Chung M, Flynn-Smith G, Wang V, Kozar A. Shear Wave Elastography (SWE) Findings at Multiple Thoracolumbar Fascia (TLF) Transition Zones Represent a Potential Biomarker for Chronic Low Back Pain (CLBP). American Osteopathic Academy of Sports Medicine Clinical Conference. Asheville, NC: April 30-May 3, 2025.
91. Pedreira M, Risov D, Fremarek N, Chung M, Flynn-Smith G, Wang V, **Brolinson PG**, Kozar A. Passive Glide Assessment of Thoracolumbar Fascia as a Biomarker for Chronic Low Back Pain. American Osteopathic Academy of Sports Medicine Clinical Conference. Asheville, NC: April 30-May 3, 2025.
92. Flynn-Smith G, Risov D, **Brolinson PG**, Kozar A, Wang V. Multimodal Ultrasound Imaging and Radiomics Reveal Structural and Functional Changes to the TLF in Individuals with Low Back Pain. Presented at the Fascia Research Congress 2025. New Orleans, August 10-14, 2025.
93. Fremarek N, Barnett J, Risov D, Mattis J, Pedreira M, Reagan A, Satoskar C, Farooq F, Carlson D, **Brolinson PG**, Chung M, Flynn-Smith G, Wang V, Redden D, Kozar A. Physical Exam (PE) Maneuvers Suggestive for Thoracolumbar Fascia (TLF) Involvement in Chronic Low Back Pain (CLBP). International Fascia Research Congress. New Orleans, LA: August 10-14, 2025. (DOD and AOA grant-funded)
94. Kozar A, Flynn-Smith G, Risov D, Fremarek N, Chung M, Barnett J, Mattis J, Pedreira M, Reagan A, Satoskar C, Farooq F, Carlson D, Redden D, **Brolinson PG**, Wang V. Active and Passive Gliding Properties of the Thoracolumbar Fascia (TLF) in Individuals with and without Low Back Pain (LBP). International Fascia Research Congress. New Orleans, LA: August 10-14, 2025.
95. Rogers E, Easley D, Abi-Aad R, ElNahhas S, Rao S, **Brolinson PG**, Rajachar R, Vlaisavljevich E, Wang, VM. Focused Ultrasound Stimulation of Nitric Oxide-releasing

Hydrogels for Tendon Healing. Presented at the 2025 BMES Annual Meeting. San Diego, CA, October 8-11, 2025.

96. Farooq F, Carlson D, Risov D, Fremarek N, **Brolinson PG**, Chung M, Flynn-Smith G, Wang V, Kozar A. Shear Wave Speed as a Biomarker for Chronic Low Back Pain (CLBP) Subjects with Thoracolumbar Fascia (TLF) Glide Impairment. PM&R: The Journal of Injury, Function and Rehabilitation. 2025 Dec 9:17(S1): S40-S41. https://doi.org/10.1002/pmrj.77_70065.

Pending Abstracts

1. Kai YT, Brolinson PG, Damron J, Hilger B, Flynn-Smith G, Wang V, Risov D, Fremarek N, Kozar A. Therapeutic Efficacy of OMT on Thoracolumbar Fascia Glide Impairment in Patients with Chronic Low Back Pain. AAO 2026 Convocation, Broadmore CO Springs, CO (March 2026).

OTHER ABSTRACTS

1. Whysong C, Mallikarjunan K, **Brolinson PG**. Chemosensory Evaluation of Training and Oxidative Stress in Long Distance Runners. 6th Annual VCOM Research Recognition Day. Blacksburg VA: October 2009.
2. Waller HH, **Brolinson PG**. Neuroma as a Cause of Neuropathy in Runners. 7th Annual VCOM Research Recognition Day. Blacksburg VA: April 2012.
3. McCrady BM, Schafer J, Sukpraprut S, **Brolinson PG**, Hovarth S, Rogers MB. Effectiveness of Iron Supplementation and Diet Change on Ferritin Levels Among Female Division I Athletes. 7th Annual VCOM Research Recognition Day. Blacksburg VA: April 2012.
4. Aldret SN, **Brolinson PG**. Effect of Concussion on Balance Using Force Plate Technology. 7th Annual VCOM Research Recognition Day. Blacksburg VA: April 2012.
5. **Brolinson PG**, Smolka M. Pre-competition Manipulation and Performance among Virginia Tech Football Player during the 2008-2009 Football Season Pilot Study. 7th Annual VCOM Research Recognition Day. Blacksburg VA: April 2012.
6. Thomas WD, Sukpraprut S, Thomas M, Kennedy K, Freund F, Brush R, **Brolinson PG**. Analysis of a Neurocognitive Assessment of Varsity Division I Athletes at Pre- and Post-Concussion. 8th Annual VCOM Research Recognition Day. Blacksburg, VA: March 2013.
7. Sparks, NL, **Brolinson PG**, Sukpraprut S, Goforth M. A Comparison of the Numbers of Medical Illness and Orthopedic Injury Encounters at an NCAA Division I Athletics Program. 8th Annual VCOM Research Recognition Day. Blacksburg VA: March 2013.
8. Wilhelm A, **Brolinson PG**, Williams RT. Platelet-Rich Plasma Treatment for Chronic Posterior Tibial Tendon Dysfunction. 8th Annual VCOM Research Recognition Day. Blacksburg VA: March 2013.
9. Andrews CK, **Brolinson PG**, Sukpraprut S, Engorn J, Goforth M. Hypertension in Division I NCAA Athletes. 8th Annual VCOM Research Recognition Day. Blacksburg VA: March 2013.
10. Weirath MD, McPherron A, Collins SP, Rogers MB, Diaz C, **Brolinson PG**. Surgical Repair Of Proximal Hamstring Avulsion In A Collegiate Wrestler. 9th Annual VCOM Research Recognition Day. Blacksburg VA: February 2014.

11. Albrecht J, Perry L, Russell A, **Brolinson PG**. Ferritin and Body Composition in Division I College Athletes; A Retrospective Review. 10th Annual VCOM Research Recognition Day. Blacksburg VA: February 2016.
12. **Brolinson PG**, Rogers MBE, Rowson S, Smith E, Weber A, Trpkovski J, Griesemer B, Kruchko D. The Reliability of Serum Biomarker S100B as a Diagnostic Tool for Traumatic Brain Injury. 10th Annual VCOM Research Recognition Day. Blacksburg VA: February 2016.
13. Tobey H, Bledsoe D, Mykins M, Lucas T, Campbell C, Berr S, Sasser T, Molinos C, Helm R, Shan L, **Brolinson PG**, Klein BG, Costa BM. A Non-Pharmacological Therapy Improves Spatial Memory, Waste Clearance and Neurotransmission in Naturally Aged Rat Model of Alzheimer's Disease. 13th Annual VCOM Research Recognition Day. Blacksburg VA: February 2018.
14. Tobey H, Lucas T, Bledsoe D, Mykins M, Campbell C, Berr SS, Sasser T, Molinos C, Helm R, Shan L, **Brolinson PG**, Klein BG, Costa BM. A non-pharmacological therapy improves spatial memory, waste clearance and neurotransmission in naturally aged rate model of Alzheimer's disease. Poster presented at the Virginia Campus Via Research Recognition Day. February 2019: Blacksburg, VA.
15. Price A, Hyppolite N, **Brolinson PG**. Assessment and management of a non-contact, isolated fibular diaphysis fracture in a Division I athlete. Poster presented at the Virginia Campus Via Research Recognition Day. February 2019: Blacksburg, VA.
16. Rezvani SN, Grange RW, Dahlgren L, **Brolinson PG**, Wang VM. A Novel Mouse Model of Eccentric Loading for the Investigation of Achilles Musculotendinous Adaptation. Poster Presentation at the Muscle Symposium. Blacksburg, Virginia: April 2019.
17. Rezvani SN, Grange RW, Dahlgren L, **Brolinson PG**, Wang VM. A Novel Mouse Model of Eccentric Loading for the Investigation of Achilles Musculotendinous Adaptation. Poster Presentation at SBES Symposium. Blacksburg, Virginia: May 2019.
18. Allin LJ, **Brolinson PG**, Nussbaum MA, Kim S, Beach B, Bannigan C, Roberto K, Madigan ML. A Pilot Study Investigating the Efficacy of Reactive Balance Training to Reduce Fall Risk of Older Adults After Slipping and Tripping. VCOM Virginia Via Research Recognition Day. Blacksburg, VA: February 2020.
19. Romero ML, Hughes-Oliver C, Rogers MB, **Brolinson PG**, Queen R. The Influence of Osteopathic Structural Evaluation and Treatment on Gait Mechanics. VCOM Auburn Research Recognition Day. Auburn, AL: February 2020.
20. **Brolinson PG**, Hyppolite N, Dickerson M, Murphy S, VandeVord P. Osteopathy in the cranial field as a method to enhance brain injury recovery: A preliminary study. VCOM Virginia Research Recognition Day. Blacksburg, VA: February 2020.
21. Tobey H, Mehrkens B, Lucus T, Bledsoe D, Mykins M, Paul S, Berr SS, **Brolinson PG**, Klein BG, Costa BM. A Novel Mechanoceutics Treatment Strategy for Alzheimer's Disease. VCOM Virginia Research Recognition Day. Blacksburg, VA: February 2020.
22. Queen R, Hughes-Oliver C, Rogers MB, Romero M, **Brolinson PG**. The Influence of Osteopathic Structural Evaluation and Treatment on Gait Mechanics. VCOM Virginia Research Recognition Day. Blacksburg, VA: February 2020.
23. Keim S, **Brolinson PG**, Biehl S, Wilkens K, Bower G, Rowson S. Video-Based Analysis Of Head Impacts In Snowsports To Understand The Associated Kinematics. VCOM Virginia Research Recognition Day. Blacksburg, VA: February 2020.

24. Kieffer EE, **Brolinson PG**, Rowson S. Elevated In-Season Presentation of Concussion-Like Symptoms in the Absence of Diagnosed Concussion. VT Sports Concussion Conference. Blacksburg, VA: July 2020.
25. Murphy S, **Brolinson PG**, Dickerson M, VandeVord P. Osteopathy in the Cranial Field as a Method to Enhance Brain Injury Recovery: A preliminary study. Abstract presented at the VCOM Virginia Research Recognition Day. Blacksburg, VA: February 26, 2021.
26. Duma S, Kemper A, **Brolinson PG**. A Novel Instrumentation Package to Quantify Rib Biomechanics During Osteopathic Manipulation of the Thorax. Abstract presented at the VCOM Virginia Research Recognition Day. Blacksburg, VA: February 26, 2021. First Place Award.
27. Murphy S, Dickerson M, Talty C-E, **Brolinson PG**, VandeVord P. Osteopathy In The Cranial Field As A Method To Enhance Brain Injury Recovery: A Preliminary Study. Presented at the 17th Annual Via Research Recognition Day. Blacksburg, VA: February 25, 2022.
28. Shitia M, Beran A, Larkin R, Goforth M, Rogers M, **Brolinson PG**. Prevalence of Electric Scooter Injuries in Athletes at an NCAA Division I University: A Retrospective Review. Presented at 18th Annual Via Research Recognition Day. Blacksburg, VA: February 24, 2023.
29. Murphy S, Cunningham J, Wang M, Michelhaugh S, Munson J, **Brolinson PG**, VandeVord P. Detecting changes in interstitial fluid flow (IFF) in the brain due to TBI and cCOMM using an MRI approach. Presented at 19th Annual Via Research Recognition Day. Blacksburg, VA: February 16, 2024.
30. Satoskar C, Reagan A, Risov D, Fremarek N, **Brolinson PG**, Chung M, Flynn Smith G, Wang V, Kozar A. Ultrasound-Guided Hydrodissection of the Thoracolumbar Fascia for Chronic Lower Back Pain: Initial Assessment. Presented at the VCOM-VA 20th Annual Research Recognition Day. Blacksburg, VA: February 14, 2025.
31. Hahn M, Qillawala A, Heims N, Maust Z, Chung M, **Brolinson PG**, Anandakrishnan R, Rogers M. Retrospective Study on Differences in Sport and Gender in D1 College Athletes with Baseline Concussion Testing Using the New SCAT-6 Concussion Assessment. Presented at the VCOM-VA 20th Annual Research Recognition Day. Blacksburg, VA: February 14, 2025.
32. Farooq F, Carlson D, Risov D, Fremarek N, **Brolinson PG**, Chung M, Flynn-Smith G, Wang V, Kozar A. Shear Wave Elastography of the Thoracolumbar Fascia as a Biomarker For Chronic Low Back Pain. Presented at the VCOM-VA 20th Annual Research Recognition Day. Blacksburg, VA: February 14, 2025.
33. Pedreira M, Risov D, Fremarek N, Chung M, Flynn-Smith G, Wang V, **Brolinson PG**, Kozar A. Passive Glide Assessment of Thoracolumbar Fascia as a Biomarker for Chronic Low Back Pain. Presented at the VCOM-VA 20th Annual Research Recognition Day. Blacksburg, VA: February 14, 2025.
34. Addis T, Hagen D, Redden D, Fremarek N, Fury M, Kozar A, Rogers M, **Brolinson PG**. Forearm Flexor Strength as a Predictive Risk Factor for Ulnar Collateral Ligament Injury in Baseball Athletes. Presented at the VCOM-VA 20th Annual Research Recognition Day. Blacksburg, VA: February 14, 2025.
35. Barnett J, Fremarek N, Risov D, **Brolinson PG**, Chung M, Flynn-Smith G, Wang V, Redden D, Kozar A. Physical Exam Maneuvers Suggestive of Thoracolumbar Fascia

- Involvement in Chronic Low Back Pain. Presented at the VCOM-VA 20th Annual Research Recognition Day. Blacksburg, VA: February 14, 2025.
36. Mattis J, Risov D, Fremarek F, Magalhaes M, Wang V, Flynn-Smith G, Chung M, **Brolinson PG**, Kozar A. Correlation Between Psychosocial Survey Scores And Thoracolumbar Fascia Glide Impairment in Chronic Low Back Pain. Presented at the VCOM-VA 20th Annual Research Recognition Day. Blacksburg, VA: February 14, 2025.
37. Kai YT, **Brolinson PG**, Damron J, Hilger B, Flynn-Smith G, Wang V, Risov D, Fremarek N, Kozar A. Therapeutic Efficacy of OMT on Thoracolumbar Fascia Glide Impairment in Patients with Chronic Low Back Pain. Presented at the VCOM-VA 21st Annual Research Recognition Day. Blacksburg, VA: February 13, 2026.

OTHER

- 1994 – 1999 **Medical Director**, MAC Basketball Championship, Seagate Center, Toledo, OH
- 1994 – 1996 **Event Physician**, Ironman World Triathlon Championship, Kona, HI
- 1994 – **Physician-in-Residence**, US Olympic Training Center, Lake Placid, New York, NY
- 1997 **Event Physician**, US Freestyle Ski Team, LaPlange, France
- 1998 **Event Physician**, US Freestyle Ski Team, Mount Tremblant, Quebec, Canada
- 1998 **Event Physician**, Goodwill Games, Team Physician for Gymnastics, Rhythm Gymnastics, Figure Skating, New York, NY
- 1999 **Event Physician**, US Alpine Ski Team, Portillo, Chile
- 1999 **Event Physician**, US Alpine Ski Team, Ofterschwang, Germany
- 2000 **Event Physician**, US Freestyle Ski Team, Heavenly Valley, CA
- 2001 **Team Physician**, Regional All Star Football Game, Perrysburg, High School
- 2001 **Medical Director**, Go the Distance Running Camp, Toledo, OH
- 2001 **Medical Director**, Junior Judo Championships, Seagate Center, Toledo, OH
- 2001 **Medical Director**, Senior Judo Championships, Seagate Center, Toledo, OH
- 2001 **Medical Director**, Kriedel Fast-pitch Softball Tournament, Toledo, OH
- 2001 **Event Physician**, US Freestyle Ski Team, Deer Valley, UT
- 2001 **Event Physician**, US Freestyle Ski Team, Tignes, France
- 2001 **Event Physician**, US Alpine Ski Team, Kraska Gora, Slovenia
- 2003 **Event Physician**, US Alpine Ski Team, Val d'Isere and Madonna, Italy
- 2003 **Event Physician**, US Freestyle Ski Team, Mt. Tremblant, Canada
- 2003 **Event Physician**, US Alpine Ski Team, Yong Pyeong (Dragon Valley, South Korea)
- 2004 **Event Physician**, US Alpine Ski Team, Alta-Badia, Italy
- 2004 **Event Physician**, US Freestyle Ski Team, Fernie, Canada
- 2004 **Tournament Physician**, NCAA Men's Golf, The Homestead Golf Resort, Hot Springs, VA
- 2004 **Tournament Physician**, Women's NCAA Basketball Sub-Regional, Blacksburg, VA
- 2005 **World Championship Physician**, United States Freestyle Ski Team, Ruka, Finland
- 2005 **Event Physician**, US Freestyle Ski Team, Sauze D'Oulx, Italy

2006 **Head Team Physician**, Freestyle Ski Team, and
Medical Staff, Winter Olympics Games, Turin, Italy

2007 **World Championship Physician**, US Freestyle Ski Team, Madonna di
Campiglio, Italy

2010 **Event Physician**, US Olympic Freestyle Ski Team, Deer Valley, UT

2010 **Medical Director**, Performance Services Center and
Medical Staff Winter Olympic Games, Vancouver, Canada

2010 **Event Physician**, Greenbrier Classic PGA Tournament, White Sulphur
Springs, WV

2012 **Event Physician**, FIS Freestyle World Cup, Deer Valley, UT

2012 **Event Physician**, USSA Medical Emergencies in Skiing / Snowboarding,
Vail, CO

2014 **Event Physician**, US Freestyle Ski Team, Deer Valley UT

2016 **Event Physician**, US Ski Team MESS Course, Vail, CO

2017 **Event Physician**, US Ski and Snowboard Team Medical Coverage, Deer
Valley, UT

2019 **Team Physician**, US Freestyle Ski Team World Championships, Deer Valley,
UT

Other Event Coverage:

Medical Director, Ohio/Michigan 5K/10K Run and Marathon, Toledo, OH

Medical Director, Jeremy Lincoln Football Camp, University of Toledo, Toledo, OH

Medical Director, Jimmy Jackson Basketball Camp, University of Toledo, Toledo, OH

Medical Director, Toledo Classic 10K, Toledo, OH

Medical Director, Race for the Cure, 5K and 10K, Toledo, OH

Medical Director, Toledo Regatta, Toledo, OH

Medical Director, Junior A and B National Hockey Tournament, Toledo, OH

Medical Director, Glass City Marathon, Toledo, OH

Medical Director, US Track and Field 24-Hour Run National Championship, Toledo, OH

Medical Director, Mad Anthony River Rally Bike Event, Perrysburg, OH

Co-Medical Director, Ohio State Games, Toledo, OH

Team Physician, USA Volleyball Association National Championship, Toledo, OH

Team Physician, USA Volleyball Association Junior Olympics, Toledo, OH

Team Physician, World Cup Wrestling Championships, Toledo, OH