Division Summary

RESEARCH AND TRAINING DETAILS
Number of Faculty 9
Number of Joint Appointment Faculty 1
Number of Research Students 2
Number of Support Personnel 4
Direct Annual Grant Support $26,200
Peer Reviewed Publications 48

CLINICAL ACTIVITIES AND TRAINING
Number of Clinical Staff 9
Number of Clinical Fellows 2
Number of Other Students 4
Outpatient Encounters 5,576

Significant Accomplishments

Concussion Research Earns Award
Catherine Quatman-Yates, PT, DPT, PhD, received the American Physical Therapy Association Sports Section Excellence in 2014 Research Award for her study of “A Postural Sway Complexity Protocol for Detection of Post-Concussion Deficits in Youth”.

Paul Gubanich, MD, MPH, joined the Division in December 2013 as an associate professor. Gubanich practices at our Liberty Campus, where he focuses on concussion management and musculoskeletal injuries in athletes. He has served as medical provider for sports teams including the Cleveland Browns, Cleveland Indians and the Ohio State University. Gubanich also has taken over the role of Fellowship Director and welcomed two new fellows: James Hahn, MD and Gregg Kottyan, MD.

Outreach Program Debuts
We completed the first full year of our Sports Medicine Outreach Program, which provides athletic training coverage and services to local high schools, clubs, organizations and tournaments. In the past year, we worked with seven high school programs and provided training and injury prevention services to the Warren County Soccer Club, Thunder United Futbol Club, Kolping Soccer Club, the Cincinnati Gymnastics Academy, and other organizations.

Research Highlights
Gregory D. Myer, PhD
Winner of the 2014 JOSPT George J. Davies - James A. Gould Excellence in Clinical Inquiry Award.

DiStasi S, Myer, GD, Hewett TE. Neuromuscular Training to Target Deficits Associated With Second Anterior Cruciate Ligament Injury.

Nicholas M. Edwards, MD, MPH

Catherine Quatman-Yates, PT, DPT, PhD
Dr. Quatman-Yates was awarded $200,000 for her project Postural Sway Complexity as a Biomarker for Concussion in Children and Adolescents. The objective of the project is to develop normative data for postural sway complexity for children and adolescents, test the diagnostic validity for ranges outside age norms, and compare results to other common measures of post-concussion dysfunction.

Significant Publications

This publication was the first to highlight sex differences in physical activity tracking in young children. The study showed that boys who had greater levels of moderate-vigorous physical activity (MVPA) at age 3 maintained higher MVPA over the following four years. On the contrary, girls did not demonstrate the same degree of MVPA tracking. These findings highlight that although physical activity patterns may be established early in life, the degree to which they are established may differ in boys and girls.


It is common for children and adolescents to experience difficulties in the school setting after they have sustained a concussion. Cognitive difficulties, such as learning new tasks or remembering previously learned material, may pose challenges in the classroom. This important report provides caretakers with improved understanding of possible factors that contribute to difficulties to learn in a school environment after a concussion. It is meant to serve as a framework for the medical home, the educational home, and the family home to guide the student to a successful and safe return to learning.


EEG differences were examined following different practice techniques during the learning of a novel motor task. The results indicate the utility of EEG for learning assessments in athletes. More specifically, the data indicate improved learning strategies that have a partial movement focus, thought to be a beneficial strategy to support the development of complex sport skills training and rehabilitation strategies focused on reacquisition of skills prior to sport reintegration.


This significant publication was the first in the literature to identify the incidence rate of second anterior cruciate ligament (ACL) injury within the first 24 months following ACL reconstruction and return to sport.
activity when normalized to athletic exposure. This data identified that young, active individuals who return to pivoting and cutting sports after ACL reconstruction were six times more likely to suffer a second ACL injury than an uninjured cohort. Females were two times more likely to suffer a contralateral injury rather than an ipsilateral graft re-tear. This landmark study highlights this high risk of subsequent ACL injury following ACL reconstruction and return to sport.


This study demonstrated that a force plate assessment protocol designed specifically to optimize the collection of postural sway dynamics following mild traumatic brain injury yielded good short-term and long-term test-retest reliability in a cohort of adolescent athletes. The protocol consists of two-minute trials under eyes open and eyes closed conditions with center-of-pressure analyses for conventional measures of sway (i.e., standard deviation and path length) as well as the dynamical systems measure of Detrended fluctuation analysis.

Division Publications


34. Myer GD, Lloyd RS, Brent JL, Faigenbaum AD. How Young is "Too Young" to Start Training?. ACSMs Health Fit J. 2013; 17:14-23.


45. Smith DW, Myer GD, Comstock RD, Clark JF, Bailes JE. Altitude Does Not Reduce Concussion


Faculty, Staff, and Trainees

Faculty Members

Kelsey Logan, MD, MPH, Associate Professor

Leadership Division Director

Research Interests Dr. Logan’s research interests include concussion; female athlete issues; overuse injuries in sport.

Kate Berz, DO, Assistant Professor

Research Interests Dr. Berz’s research interests are in injuries of the female athlete, nutrition, and osteopathic manipulative therapy.

Nicholas Edwards, MD, MPH, Assistant Professor

Research Interests Nicholas M. Edwards, MD, MPH is focused on the areas of physical activity promotion and cardiovascular disease prevention.

Paul Gubanich, MD, MPH, Associate Professor

Leadership Fellowship Director

Research Interests Dr. Gubanich's research interests are sports concussion; medical problems in athletes; injury prevention; performance enhancement; musculoskeletal ultrasound.

Adam Kiefer, PhD, Assistant Professor

Research Interests Dr. Kiefer’s research interests include augmented/virtual reality; behavioral dynamics; biofeedback; dynamical disease; exercise science; individual/team coordination; nonlinear dynamics; quantitative methods; sports medicine.

Greg Myer, PhD, Assistant Professor

Leadership Director of Research

Research Interests Dr. Myer’s primary research interests are related to injury biomechanics, pediatric exercise science and exercise prevention strategies.

Catherine Quatman-Yates, PT, DPT, PhD, Assistant Professor

Research Interests Dr. Quatman-Yates is interested in optimizing post-concussion evaluation and rehabilitation processes for children and adolescents.

Gregory Walker, MD, Assistant Professor

Research Interests Dr. Walker’s research focus is physical inactivity in youth and concussion prevention and treatment.
Timothy Hewett, PhD, Adjunct

Research Interests Dr. Hewett’s research interests lie in neuromuscular, biomechanical and molecular adaptation of the muscular, boney and nervous systems to stresses such as growth, development and neuromuscular training.

Laura Schmitt, PhD, Adjunct

Research Interests Dr. Schmitt is interested in outcomes after ACL reconstruction; injury biomechanics

Joint Appointment Faculty Members

Mark Paterno, PhD, PT, MS, MBA, SCS, ATC, Associate Professor (Occupational Therapy and Physical Therapy)

Research Interests Clinical outcomes after lower extremity injury; rehabilitation intervention outcomes; outcome after ACL reconstruction

Trainees
- Nate Bates, PhD Candidate
- Michael Donaworth, MD, PGY-IV
- Pamela Lachniet, MD, PhD, PGY-IV

Division Collaboration

Collaborating to develop and validate non-invasive outcome prediction algorithm tools for Knee Osteochondritis Dissecans in children.

Orthopaedics » Gregory D. Myer, PhD and Eric J. Wall, MD

We continue our partnership on a five year study measuring the rate of cardiovascular aging in adolescents and young adults and will determine which risk factors best predict accelerated aging.
(Nicholas Edwards, MD, MPH)

Preventative Cardiology » Elaine Urbina, MD

This collaborative effort between Sports Medicine and PMR is a prospective assessment of risk factors for and effects of sports related concussions.
(Paul Gubanich, MD, MPH; Adam Kiefer, PhD; Kelsey Logan, MD, MPH; Gregory Myer, PhD; Catherine Quatman-Yates, PT, DPT, PhD)

Physical Medicine and Rehabilitation » Brian Hang, MD, Brad Kurowski, MD, and Shari Wade, PhD

This collaborative effort between Sports Medicine and OT/PT includes working on projects related to the effects of interventions on injury risk, concussion and foot/ankle research.
(Kate Berz, DO; Paul Gubanich, MD, MPH; Adam Kiefer, PhD; Kelsey Logan, MD, MPH, FAAP, FACP; Gregory Myer, PhD; Gregory Walker, MD)

Occupational Therapy | Physical Therapy » Katherine Hickey-Lucas, PT, DPT, Jason Hugentober, PT, DPT, Mark Patemo, PT, PhD, and Catherine Quatman-Yates, PT, DPT, PhD

Efforts with Sports Medicine and the CCIC have led the way toward development of multi-disciplinary head
injury/concussion clinic, prevention program and treatment pathways.

**Comprehensive Children's Injury Center**

We continue several joint projects focused on developing new exercise protocols for obese children and assessing physical activity in summer camp settings.
(Nicholas Edwards, MD, MPH; Gregory Myer, PhD)

**Center for Better Health and Nutrition**

Robert Siegel, MD

The Divisions of Sports Medicine and Behavioral Therapy/Clinical Psychology have collaborated for a project entitled FIT (Fibromyalgia Integrative Training) Teens. In this study, adolescent patients with Fibromyalgia are treated with a combined treatment protocol involving both Cognitive Behavioral Therapy and Integrative Neuromuscular Training. These treatments are aimed to improve their coping abilities, improve their strength, mechanics, and postural control to overall enhance their ability to lead more active lifestyles.
(Gregory Myer, PhD)

**Behavioral Medicine and Clinical Psychology**

Susmita M. Kashikar-Zuck, PhD

Our joint studies attempt to determine the effectiveness of preventative strategies to mitigate incidence of mild brain injury biomarkers.
(Paul Gubanich, MD, MPH; Kelsey Logan, MD, MPH; Adam Kiefer, PhD)

**Radiology and Medical Imaging**

James Leach, MD and Suraj Serai, PhD

This includes additional studies to determine imaging biomarkers of mild brain injury.
(Gregory Myer, PhD)

**Imaging Research Center**

Weihong Yuan, PhD

We are developing studies to determine the imaging prognostic factors for healing in children with knee Osteochondritis Dissecans as well as investigations to determine early predictors of osteoarthritis after anterior cruciate ligament reconstruction in adolescents and young adults.
(Gregory Myer, PhD)

**Radiology**

Andrew Zbojniewicz, MD

A study to determine the effectiveness of preventative strategies to mitigate incidence of hearing loss in high risk individuals.
(Gregory Myer, PhD)

**Audiology**

Lisa Hunter, PhD

This project will construct a profile of driving performance for teens following concussion.
(Adam Kiefer, PhD)

**Behavioral Medicine and Clinical Psychology**

Dean Beebe, PhD and Jeff Epstein, PhD

This collaborative project utilizes eye tracking to modulate the attention of teen drivers with ADHD.
(Adam Kiefer, PhD)

**Behavioral Medicine and Clinical Psychology**

Jeff Epstein, PhD

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**Grants, Contracts, and Industry Agreements**
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<th>Grant Holder</th>
<th>Project Title</th>
<th>Funding Agency</th>
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<td>Effects of Physical Activity &amp; Marijuana Use on Frontolimbic Functioning During Adolescence: An fMRI Study</td>
<td>National Institutes of Health (University of Wisconsin)</td>
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<td>MYER, G</td>
<td>Multi-Faceted Approach Modeling ACL Injury Mechanisms</td>
<td>National Institutes of Health (The Ohio State University Research Foundation)</td>
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**Current Year Direct** $26,200

**Total** $26,200