

Division Data Summary

Research and Training Details

Number of Faculty	6
Number of Joint Appointment Faculty	2
Number of Research Fellows	1
Number of Research Students	10
Number of Support Personnel	6
Direct Annual Grant Support	\$593,556
Peer Reviewed Publications	23

Clinical Activities and Training

Number of Clinical Staff	2
Number of Clinical Fellows	2
Number of Clinical Students	25
Outpatient Encounters	4,860

Division Photo



Left to Right: M Paterno, N Edwards, T Hewett, G Myer, M Shaffer

Significant Publications

Myer GD, Ford KR, Barber Foss KD, Goodman A, Ceasar A, Rauh MJ, Divine JG, Hewett TE. The incidence and potential pathomechanics of patellofemoral pain in female athletes. Clin Biomech (Bristol, Avon). 25(7):700-707. Aug, 2010.

Patellofemoral pain was often thought to be a self-limiting, relatively benign condition. This article examined the pathomechanics of this condition, but more importantly identified that the incidence of PFP was occurring at the middle school level, earlier than previously thought. This fact is important because it shows that intervention programs need to be targeted to younger athletes.

Myer GD, Faigenbaum AD, Ford KR, Best TM, Bergeron MF, Hewett TE. When to initiate integrative neuromuscular training to reduce sports-related injuries and enhance health in youth? Curr Sports Med Rep. 10(3):157-166. 2011.

This manuscript was significant because of its fundamental clinical application. It combined the knowledge gained from our previous research on how to identify and classify high risk athletes with practical application of that knowledge to the athletes in need.

Myer GD, Ford KR, Hewett TE. New method to identify athletes at high risk of ACL injury using clinic-based measurements and freeware computer analysis. Br J Sports Med. Nov 16, 2011.

This article was tantamount in identifying measures readily available to the clinician to aid in identifying athletes at higher risk of ACL injury. Classification was previously only available through high tech and expensive laboratory equipment. Now, this ground breaking information is available to clinicians across the country. The information presented has far reaching opportunity to aid in reducing ACL injury through proper risk classification.

Myer GD, Ford KR, Khoury J, Succop P, Hewett TE. Biomechanics laboratory-based prediction algorithm to

identify female athletes with high knee loads that increase risk of ACL injury. *Br J Sports Med.* Jun 17, 2011.

This article was significant because it provided the foundation to identify those athletes at increased risk of ACL injury. The identification of those athletes at increased risk of ACL injury is crucial to initiate targeted injury prevention training programs. This laboratory based algorithm lead to the development of clinic based prediction tools.

Myer GD, Ford KR, Khoury J, Succop P, Hewett TE. Development and validation of a clinic-based prediction tool to identify female athletes at high risk for anterior cruciate ligament injury. *Am J Sports Med.* 38(10):2025-2033. Oct, 2010.

This manuscript was significant because it led to the development, and more importantly, the validation of a clinical tool to identify athletes at high risk of ACL injury. It determined that the clinic based measures were valid in identification of risk factors.

Division Collaboration

Orthopaedics » Eric Wall, MD

Bone Bruise Study

Biostatistics & Epidemiology » Jane Khoury, PhD ; Bin Huang, PhD

Statistical Analysis of Research Data

Heart Institute; » Jeff Robbins, PhD ; Jeffrey Anderson, MD, Richard Czosek, MD, Michelle Grenier, MD, Timothy Knilans, MD

These long-term, ongoing studies involve Molecular Cardiovascular Biology and Sports Medicine examine the congenital basis for heart disease especially diseases that involve sudden death in the young.

This collaboration will utilize a unique screening protocol to study sudden deaths in athletes.

Preventive Cardiology » Elaine Urbina, MD

This new five year study will measure the rate of cardiovascular aging in adolescents and young adults and determine which risk factors best predict accelerated aging.

Rheumatology » Susan Thompson, PhD

This collaborative effort between Sports Medicine and Rheumatology involved an examination of genetic risk factors for ACL tears and long-term knee osteoarthritis

Physical Medicine and Rehabilitation » Brian Hang, MD

This collaborative effort between Sports Medicine and PM&R is a prospective assessment of risk factors for and effects of sports related concussions

Occupational Therapy/Physical Therapy » Becky Reder

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.

Comprehensive Children's Injury Center (»

Development of multi-disciplinary head injury/concussion clinic, prevention program and treatment pathways

Center for Better Health and Nutrition » Robert Siegel, MD

This project will evaluate advanced methods of physical activity assessment and feedback and their utility in children.

Faculty Members

Jon Divine, MD, Associate Professor

Medical Director

Research Interests

Nicholas Edwards, MD,MPH, Assistant Professor

Research Interests Physical activity promotion, obesity prevention and treatment, fitness monitoring, exercise counseling, infectious disease and the athlete.

Kevin Ford, PhD, Assistant Professor

Co-Director of Research

Research Interests Sports injury prevention, biomechanical modeling techniques, lower extremity sports injuries

Timothy Hewett, PhD, Professor

Research Interests Prevention of knee injuries in the female athlete

Greg Myer, PhD, Assistant Professor

Co-Director of Research

Research Interests Injury Biomechanics, Pediatric Exercise Science, Child Health

Michael Shaffer, DO, Assistant Professor

Fellowship Director

Research Interests Injury prevention, altered foot mechanics, manipulative treatment of spine and pelvis related dysfunction, treatment of female athlete's medical and physical issues related to sport

Joint Appointment Faculty Members

Mark Paterno, PT, MS, MBA, SCS, ATC, Assistant Professor

Occupational Therapy and Physical Therapy

Research Interests Clinical Outcomes after Lower Extremity Injury, Rehabilitation Intervention Outcomes, Outcome after ACL Reconstruction

Eric Wall, MD, Associate Professor

Orthopaedic Physicians and Staff

Clinical Staff Members

- Corey Ellis, MD

Trainees

- Nate Bates, PhD Candidate
- Mike Puchowicz, MD, PGY-VI
- Sarah Murdick, MD, PGY-VI
- Carmen Quatman, MD Candidate
- Catherine Quatman-Yates, Post-Doctoral Fellow
- Dai Sugimoto, PhD Candidate
- Sam Wordeman, PhD Candidate
- Casey Reed, Medical Student
- Tamara Masters,

Significant Accomplishments

Preventing Heart Disease

Nicholas Edwards, MD, MPH, was awarded a Clinical and Translational Science Award KL2 Research Scholars mentored career development award for “Effects of Physical Activity on Cardiovascular Risk Factors in Youth.” In the United States, more people die from heart attacks and heart-related illnesses than any other cause. This study will help find the best ways to prevent children from developing heart problems as they grow up.

Division Award and Honors

Mark Paterno, PhD, was named the winner of the 2010 NCAA Research Award from the American Orthopaedic Society for Sports Medicine for his work, “Biomechanical Measures During Landing and Postural Stability Predict Second Anterior Cruciate Ligament Injury after ACL Reconstruction and Return to Sport.”

Carmen Quatman, MD, and coauthor Laura Schmitt were named as the recipients of the AJSM Systematic Review Award.

Sam Wordeman received the American College of Sports Medicine Biomechanics interest group student research award.

New Division Director and Advanced Degrees Awarded

Teri Metcalf McCambridge, MD, was hired as the new division director and medical director for Sports Medicine. McCambridge received her undergraduate degree from the Ohio State University and medical degree from Johns Hopkins School of Medicine.

Mark Paterno received his doctorate of philosophy in orthopaedic and sports science from Rocky Mountain University of Health Care Professions. Greg Myer received his PhD in athletic training from Rocky Mountain University and was promoted to research instructor. Carmen Quatman received her medical degree from the University of Toledo College of Medicine.

Division Publications

1. Boden BP, Sheehan FT, Torg JS, Hewett TE. **Noncontact anterior cruciate ligament injuries: mechanisms and risk factors**. *J Am Acad Orthop Surg*. 2010; 18:520-7.
2. Chambers HG, Shea KG, Anderson AF, Brunelle TJ, Carey JL, Ganley TJ, Paterno MV, Weiss JM, Sanders JO, Watters WC, 3rd, Goldberg MJ, Keith MW, Turkelson CM, Wies JL, Raymond L, Boyer KM, Hitchcock K, Anderson S, Sluka P, Boone C, Patel N. **Diagnosis and treatment of osteochondritis dissecans**. *J Am Acad Orthop Surg*. 2011; 19:297-306.
3. Edwards NM, Baumann-Blackmore NL, Saari TN. **Attitudes of Wisconsin pediatricians toward influenza immunization**. *WMJ*. 2011; 110:63-7.
4. Filipa A, Byrnes R, Paterno MV, Myer GD, Hewett TE. **Neuromuscular training improves performance on the star excursion balance test in young female athletes**. *J Orthop Sports Phys Ther*. 2010; 40:551-8.
5. Ford KR, Myer GD, Hewett TE. **Longitudinal effects of maturation on lower extremity joint stiffness in adolescent athletes**. *Am J Sports Med*. 2010; 38:1829-37.
6. Ford KR, Shapiro R, Myer GD, Van Den Bogert AJ, Hewett TE. **Longitudinal sex differences during landing in knee abduction in young athletes**. *Med Sci Sports Exerc*. 2010; 42:1923-31.
7. Harrison AD, Ford KR, Myer GD, Hewett TE. **Sex differences in force attenuation: a clinical assessment**

- of single-leg hop performance on a portable force plate.** *Br J Sports Med.* 2011; 45:198-202.
8. Hewett TE, Ford KR, Hoogenboom BJ, Myer GD. **Understanding and preventing acl injuries: current biomechanical and epidemiologic considerations - update 2010.** *N Am J Sports Phys Ther.* 2010; 5:234-51.
 9. Hewett TE, Lynch TR, Myer GD, Ford KR, Gwin RC, Heidt RS, Jr.. **Multiple risk factors related to familial predisposition to anterior cruciate ligament injury: fraternal twin sisters with anterior cruciate ligament ruptures.** *Br J Sports Med.* 2010; 44:848-55.
 10. Kiefer AW, Riley MA, Shockley K, Sitton CA, Hewett TE, Cummins-Sebree S, Haas JG. **Multi-segmental postural coordination in professional ballet dancers.** *Gait Posture.* 2011; 34:76-80.
 11. Myer GD, Brent JL, Ford KR, Hewett TE. **Real-time assessment and neuromuscular training feedback techniques to prevent ACL injury in female athletes.** *Strength Cond J.* 2011; 33:21-35.
 12. Myer GD, Faigenbaum AD, Chu DA, Falkel J, Ford KR, Best TM, Hewett TE. **Integrative training for children and adolescents: techniques and practices for reducing sports-related injuries and enhancing athletic performance.** *Phys Sportsmed.* 2011; 39:74-84.
 13. Myer GD, Faigenbaum AD, Ford KR, Best TM, Bergeron MF, Hewett TE. **When to Initiate Integrative Neuromuscular Training to Reduce Sports-Related Injuries and Enhance Health in Youth?.** *Curr Sports Med Rep.* 2011; 10:155-166.
 14. Myer GD, Ford KR, Barber Foss KD, Goodman A, Ceasar A, Rauh MJ, Divine JG, Hewett TE. **The incidence and potential pathomechanics of patellofemoral pain in female athletes.** *Clin Biomech (Bristol, Avon).* 2010; 25:700-7.
 15. Myer GD, Ford KR, Hewett TE. **New method to identify athletes at high risk of ACL injury using clinic-based measurements and freeware computer analysis.** *Br J Sports Med.* 2011; 45:238-44.
 16. Myer GD, Ford KR, Khoury J, Hewett TE. **Three-dimensional motion analysis validation of a clinic-based nomogram designed to identify high ACL injury risk in female athletes.** *Phys Sportsmed.* 2011; 39:19-28.
 17. Myer GD, Ford KR, Khoury J, Succop P, Hewett TE. **Biomechanics laboratory-based prediction algorithm to identify female athletes with high knee loads that increase risk of ACL injury.** *Br J Sports Med.* 2011; 45:245-52.
 18. Myer GD, Ford KR, Khoury J, Succop P, Hewett TE. **Clinical correlates to laboratory measures for use in non-contact anterior cruciate ligament injury risk prediction algorithm.** *Clin Biomech (Bristol, Avon).* 2010; 25:693-9.
 19. Myer GD, Ford KR, Khoury J, Succop P, Hewett TE. **Development and validation of a clinic-based prediction tool to identify female athletes at high risk for anterior cruciate ligament injury.** *Am J Sports Med.* 2010; 38:2025-33.
 20. Myer GD, Schmitt LC, Brent JL, Ford KR, Barber Foss KD, Scherer BJ, Heidt RS, Jr., Divine JG, Hewett TE. **Utilization of Modified NFL Combine Testing to Identify Functional Deficits in Athletes Following ACL Reconstruction.** *J Orthop Sports Phys Ther.* 2011; 41:377-87.
 21. Paterno MV, Schmitt LC, Ford KR, Rauh MJ, Myer GD, Huang B, Hewett TE. **Biomechanical measures during landing and postural stability predict second anterior cruciate ligament injury after anterior cruciate ligament reconstruction and return to sport.** *Am J Sports Med.* 2010; 38:1968-78.
 22. Quatman CE, Quatman-Yates CC, Hewett TE. **A 'plane' explanation of anterior cruciate ligament injury mechanisms: a systematic review.** *Sports Med.* 2010; 40:729-46.
 23. Schmitt LC, Paterno MV, Huang S. **Validity and internal consistency of the international knee documentation committee subjective knee evaluation form in children and adolescents.** *Am J Sports Med.* 2010; 38:2443-7.

Grants, Contracts, and Industry Agreements

Grant and Contract Awards

Annual Direct / Project Period Direct

EDWARDS, N

Effects of Physical Activity on Cardiovascular Risk Factors in Youth		
National Institutes of Health(University of Cincinnati)		
KL2 RR 026315	04/01/2011-03/31/2012	\$100,000

FORD, K

Sex Differences in ACL Injury Risk Factors Emerge During Adolescent Growth		
National Institutes of Health		
R03 AR 057551	07/12/10-06/30/13	\$54,592

HEWETT, T

Neuromuscular Intervention Targeted to Mechanisms of ACL Load in Female Athletes		
National Institutes of Health		
R01 AR 055563	09/01/08-08/31/12	\$438,964

Current Year Direct		\$593,556
Total		\$593,556