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## ORIGINAL RESEARCH BY TWO OF PROREHAB'S OWN

**WHY DOES AN ATHLETE IN PEAK PHYSICAL  
CONDITION SUSTAIN NON-CONTACT INJURIES?**

**WHY IS AN ATHLETE SO FREQUENTLY RE-INJURED  
AND THOSE INJURIES BECOME CHRONIC?**

**WHY IS IT SO DIFFICULT TO TREAT "OVERUSE"  
INJURIES IN THE ATHLETE?**

Our research stemmed from answering these questions that plague the sports medicine professional. The literature is replete with evidence that injury is multifactorial, but how can one capture all of the nuances of those factors. We have observed that how an athlete moves matters and the biomechanical literature is starting to support that theory (e.g. valgus collapse as a predictor of ACL injury in female athletes). The problem with looking at one biomechanical factor in isolation is that it only identifies a sign of the underlying problem and not the true dysfunction itself.

By taking a step back and looking at the fundamental movement patterns an athlete performs, we are better able to identify the root cause of the injury risk. Traditionally, assessing the quality of an athlete's movement has been limited to complicated laboratory biomechanical analysis or fairly unreliable due to the subjective nature of the assessment. By using two assessment systems, the

Functional Movement Screen™ and Y Balance Test™ we have given objective numbers to movement analysis. Having completed 3 studies, with several more in the works, we have demonstrated that athletic injury risk factors can be assessed in an efficient reliable manner. The abstract that follows is our second study in using movement assessment for injury prediction.

### **CAN SERIOUS INJURY IN PROFESSIONAL FOOTBALL BE PREDICTED BY A PRESEASON FUNCTIONAL MOVEMENT SCREEN?**

#### *ABSTRACT*

**Background.** Little data exists regarding injury risk factors for professional football players. Athletes with poor dynamic balance or asymmetrical strength and flexibility (i.e. poor fundamental movement patterns) are more likely to be injured. The patterns of the Functional Movement Screen™ (FMS) place the athlete in positions where range of motion, stabilization, and balance deficits may be exposed.

**Objectives.** To determine the relationship between professional football players' score on the FMS™ and the likelihood of serious injury.

**Methods.** FMS™ scores obtained prior to the start of the season and serious injury (membership on the injured reserve for at least 3 weeks) data were compiled for one team (n=46). Utilizing a receiver-operator characteristic curve the FMS™ score was used to predict injury.

**Results.** A score of 14 or less on the FMS™ was positive to predict serious injury with specificity of 0.91 and sensitivity of 0.54. The odds ratio was 11.67, positive likelihood ratio

was 5.92, and negative likelihood ratio was 0.51.

**Discussion and Conclusion.** The results of this study suggest fundamental movement (as measured by the FMS™) is an identifiable risk factor for injury in professional football players. The findings of this study suggest professional football players with dysfunctional fundamental movement patterns as measured by the FMS™ are more likely to suffer an injury than those scoring higher on the FMS™.

**Key words:** Functional Movement Screen, injury prediction.

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Dr. Kiesel and Dr. Plisky are physical therapists and clinical researchers at ProRehab. They conduct research related to functional movement testing and injury prediction in athletes and serve as consultants for professional, college, and high school sports teams. They have presented their research nationally and internationally and in several peer reviewed journals."

## SPORTS RESIDENCY PROGRAM

ProRehab and the University of Evansville have partnered to provide a Sports Clinical Residency Program. The goal of the University of Evansville's Clinical Residency Program is for Residents to sit for their board specialty examination, similar to the boards physicians take in their own field. In addition to taking classes, these individuals spend mentored time with experts such as orthopedic surgeons, leading physical therapists, certified athletic trainers and the outstanding faculty at the University of Evansville.

### MISSION

The mission of the ProRehab and University of Evansville Clinical Residency Program is to provide post-professional experiential and didactic learning that will promote clinical excellence and encourage clinicians to become innovative, efficient, and effective outpatient sports rehabilitation specialists. These individuals will use evidenced based principles to achieve superior functional outcomes and patient satisfaction. The ultimate goal of the Clinical Residency Program is to develop clinical specialists who are self-reflective, service-oriented professionals who possess advanced skills and competencies which will allow them to analyze patient problems, think critically, use current best evidence to support patient care decisions, actively participate in research, and recognize the importance of lifelong learning and ethical decision-making.

### OVERVIEW

The ProRehab and University of Evansville Sports Residency Program is designed to provide physical therapists with advanced proficiency in the complete care of the athlete. This includes pre-participation physicals, performance enhancement, injury prevention, on-field management, rehabilitation, and return to sport considerations.

**Jump Start Your Career!**  
**Sports Physical Therapy Residency Program**

**Do you want to...**

- be directly mentored by experts in the sports medicine field, including medical and surgical observations?
- be prepared to sit for your sports specialist certification exam after graduation from the residency program?
- learn the biomechanics of sports and sports-related injuries (throwing, running, landing mechanics)?
- assist in the advanced orthopaedic and sports class at the University of Evansville?
- have on-field experience with high school, college and professional athletic teams?
- learn taping, bracing and splinting techniques for athletes?
- increase your sports physical therapy expertise?
- actively participate in clinical research?

**Now Is the Time**  
 Contact Phil Pinsky, PT, DCS, OCS, ATCL, CSCS, for details  
 812-759-3007 or 866-889-5691 (toll free)  
 ProRehab@evansville.edu

The early application deadline is December 1, 2008. Call for application materials, or download them from [www.prorehab-uc.com](http://www.prorehab-uc.com). Space is limited. In the meantime, we apply now!

**ProRehab** **UNIVERSITY OF EVANSVILLE**  
 One Mission • Sacred Trust

Several physical and occupational therapy staff members and certified athletic trainers hold advanced certifications in sports, orthopaedics, strength and conditioning, performance enhancement, and injury prevention programs. Our unique affiliation with multiple high school, college, and professional teams allows the Resident to have concentrated exposure to sports physical therapy.

During this program, the physical therapist will work in-clinic 40 hours per week and have time spent in direct mentorship with sports patients. The remainder of the week will be spent on-field with "hands-on" sports physical therapy mentorship provided by ProRehab's Certified Athletic Trainers and Physical Therapists. The Resident will have the opportunity to work with local high schools as well as collegiate and professional athletes. The Resident will

observe surgery and participate in clinic patient care with the orthopaedic surgeon.

The Residents will take additional coursework focused on sports physical therapy. ProRehab physical therapists, certified athletic trainers, and certified hand therapists will be serving as instructors for these courses. Through these courses they will learn emergency management of the injured athlete, taping/bracing, injury prevention, strength and conditioning, the female athlete triad, and internal organ and skin diseases. In addition, the Resident will have advanced classes in all of the major body regions as well as running, landing, and throwing analysis.

"It is truly exciting to be involved in the UE/ProRehab sports residency program - one of less than a dozen programs in the country that lead to advanced training in the complete care of the athlete. The entire staff at ProRehab benefits from the interactions with our resident PTs through mentoring, didactic educational presentations and active research lines aimed at improving not only care of the athlete but, also prevention and performance enhancement. It is rewarding to know that we are also advancing the quality of care of our local athletes by extending the reach of our highly credentialed staff in order to optimize our potential to keep the tri-state area on the cutting edge of science."

- Bob Tank, PT, MA, ATC  
Co-Owner of ProRehab

The Resident will participate in one of the active research lines through ProRehab and the University of Evansville. The Resident will also have the opportunity to assist with the teaching of the advanced sports and orthopaedic class

through the University of Evansville. By the completion of the 15 month program, the therapist will be prepared to sit for the Sports Certified Specialist Exam.

Currently there are only 7 credentialed programs such as the Clinical Residency Program in the country. The ProRehab and University of Evansville's Sports Residency Program is currently in the application process and awaiting credentialing to become the eighth unique program. ProRehab is extremely excited to produce the caliber of program that's being offered through ProRehab and the University of Evansville.

#### FIRST RESIDENTS PARTICIPATING IN THE SPORTS PHYSICAL THERAPY RESIDENCY PROGRAM HAVE A LONG HISTORY AT PROREHAB



**Beth Barrett, MPT**

Beth received her Masters Degree in Physical Therapy from the University of Evansville in May 2006 and is currently a Resident in the Sports Clinical Specialist Residency Program.

- Grew up in Fort Branch and went to Gibson Southern High School
- Torn ACL playing soccer summer before senior year (1999) - had surgery and did rehab at ProRehab
- My injury and subsequent surgery and therapy were what made me realize that I wanted to become a physical therapist.
- Worked at ProRehab throughout PT school in various positions and became a therapist at ProRehab in 2006
- I love working with athletes of all ages and seeing them

return to their sports as well as correcting problems that could cause re-injury

- I really don't think I would be doing what I'm doing today had it not been for the influence of so many people at ProRehab not only when I was a patient, but the people who have mentored me as a therapist.
- Received Master's Degree in Physical Therapy from the University of Evansville in May 2006 and is currently a Resident in the Sports Clinical Specialist Residency Program.



**Jill Hickey, MPT**

Jill received a Master's Degree in Physical Therapy from the University of Evansville in 2007 and is currently a Resident in the Sports Clinical Specialist Residency Program.

- Grew up in Evansville, IN and went to Harrison High School
- Had several injuries from sports over the years that required physical therapy
- Decided in 3rd grade that I thought I wanted to be a physical therapist when I grew up
- Tore ACL/medial meniscus in the first game of the season (1999)
- Had surgery by Dr. Saltzman and did rehab at ProRehab
- Returned to travel soccer in spring 2000. Tore ACL again in a Florida Disney Wide World of Sports tournament.
- Played the rest of travel soccer

and school soccer with torn ACL and brace

- Had second ACL surgery by Dr. Saltzman (2000)
- After all of the intense physical therapy I went through with my knee surgeries, this confirmed my dream of becoming a physical therapist and I realized that was the only thing I could see myself doing when I got older
- I looked forward to going to therapy at ProRehab, I loved working with my therapists, and my therapists truly

became role models for me

- It was a hard decision, but I decided not to play in college and focus all my attention on physical therapy school
- Received a Master's Degree in Physical Therapy from the University of Evansville in 2007 and is currently a Resident in the Sports Clinical Specialist Residency Program
- Now, I truly believe everything happens for a reason and I feel like if none of this would have happened to me, I wouldn't be where I am today
- I still miss soccer and get chills every time I step onto Double Cola fields, but I know that I love my job and that I can help other athletes prevent injuries like I had or help athletes return to sport and empathize with what they are

### NEW NON SURGICAL APPROACH TO LOW BACK PAIN LEADS TO IMPROVED LONG TERM OUTCOMES

There is a new non surgical approach to treating low back pain which is available in a few geographical areas throughout the country and Evansville is on the leading front thanks to the talented staff of ProRehab.

The second leading cause for a visit to the physician is due to back pain. In fact, 80% of the population is affected by low back pain at some stage in their life.



The traditional approaches to treating low back pain range from rest and medications to treating patients with low back pain using standard physical therapy methods such as modalities and the McKenzie technique. The latest evidence ProRehab actively partici-

pates in adds a new dimension towards effective LONG TERM outcomes. Through early intervention and properly placing each patient in the correct low back pain category, ProRehab is able to avoid repeated bouts of pain which leads to chronic disability. The approach is based upon the latest research which has demonstrated superior outcomes are achieved when this individualized classification approach is utilized. Current best evidence has shown that this will direct the therapeutic approach most efficiently resulting in not only reduced costs to the patient but, also quicker return to normal activities. ProRehab incorporates evidence-based practices into the day-to-day treatment of patients, to assure each patient is getting the best care for his or her unique situation. The three treatment categories include: manual therapy and exercise; directional preference exercise; neuromuscular re-education & stabilization exercises.

ProRehab's leading expert in the latest evidence-based research for low back pain is Kyle Kiesel, Physical Therapist with a Doctoral Degree in Rehabilitation Sciences from the University of Kentucky. Dr. Kiesel had three articles published this month in the Journal of Orthopedic and Sports Physical Therapy, one of which was conducted with the assistance of eight of ProRehab's physical therapists. The results of this study demonstrated that patients with low back pain in each of the three categories mentioned previously have core muscle weakness which must be addressed. The research utilized rehabilitative ultrasound imaging to measure deep core muscle function. Kyle has presented on this topic at national and international meetings, allowing him to interact with leading physical therapy researchers and clinicians around the world which has helped ensure the clinical interventions utilized at ProRehab follow the current best evidence available. Incorporating rehabilitative ultrasound imaging results into the low back treatment program allows for the improved

ability of patients to utilize their core stabilizing muscles in supporting their spine during functional movements. It is this technique and the evidence-based classification approach taken by ProRehab clinicians that is unique to this geographic area.



ProRehab, locally owned and operated, employs over 115 employees with therapists who have a long list of accomplishments including:

- 3 therapists with academic doctoral degrees
- 9 therapists holding entry-level clinical doctoral degrees;
- 10 therapists currently engaged in doctoral training; and
- 9 therapists certified by the American Society of Hand Therapists
- ProRehab has 5 Orthopedic Clinical Specialists
- 3 of the state of Indiana's 9 Sports Clinical Specialists.

To learn more about our amazing staff and rehabilitation services, please visit our web site:

**[www.prorehab-pc.com](http://www.prorehab-pc.com)**



# Thank You!



Over 50 professionally licensed therapists and athletic trainers, 8 locations,  
**AND COUNTLESS SATISFIED PATIENTS.**

Thank you Tri-State for helping us become what we are today. We like to give back to the community that made us. No problem is too big or small. We're still privately owned and operated with a majority of our staff being homegrown.

**8 Convenient Locations!**

- 7300 E. Indiana St., Ste. 102, Evansville • 812-476-0409
- 533 W. Columbia St., Lower Level, Evansville • 812-759-3001
- 5625 Pearl Drive, Ste. 100, Evansville • 812-759-7493
- 4166 Wynthree Dr., Ste. B, Newburgh • 812-759-7464
- 3434 W. State Road 66, Rockport, IN • 812-627-7007
- 2121 Willow St., Vincennes, IN • 812-882-3143
- 1605 Scherm Rd., Owensboro, KY • 270-663-6050
- Atria Assisted Living, 5311 Rosebud Ln, Newburgh • 812-759-7464

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