The Institute was created in 2005 at the University of Wisconsin-La Crosse Health Professions Department in the Health Science Center. It brings together scientists and clinicians from various disciplines seeking new knowledge related to human movement, factors related to injury, and in the foundations of therapeutic exercise used in the treatment and rehabilitation of injury.

Each year over 40 students from graduate and undergraduate programs from the UW-L campus are involved in laboratory research including Physical Therapy, Exercise and Sport Science, Physics, and Biology. High technology funding from the State of Wisconsin supports 8 Physics Biomedical student internships in the laboratory.

Due to the many publications from the clinical biomechanics laboratory has developed a national reputation from published and presented work.

Current Projects

- Postural control of Older Adults
- Changes in knee mechanics during movement after anterior cruciate ligament reconstruction
- Effects of multifrequency vibration on blood flow and muscle activation.

Research Spotlight

Runners who rearfoot strike may have less Achilles tendon loading than forefoot/midfoot strike runners each time that they contact the ground (see Figures Right). These data show that it may be wise to make a slow transition if changing foot strike pattern during distance running. It will likely take time for the tendon to remodel to these new stresses (Almonroeder T, Willson JD, Kernozek TW. Ann Biomed Eng. 2013 Aug;41(8):1758-66)

Achilles Tendon Force in Running

LIMS funded by the NIH to study vibratory effects on blood flow and muscle activation

Tom Kernozek, in collaboration with Bertram Ezenwa (UW-Stout) and Qiangwei Fu (Gundersen Lutheran), will study a new medical device that is applied to a limb to increase blood flow by increasing muscle activation. This device can potentially be used for medical conditions where blood pooling is thought to be a medical issue. The device was developed by BEzenwa Biomedical Engineering LLC.

LIMS Scientists

- Chris Durall, DPT, ATC, MSPT (UW-La Crosse Health Center)
- John Greany, PT, PhD, Exercise Physiologist, (Health Professions)
- Thomas Greiner, PhD, Biological Anthropologist, (Health Professions)
- Di-An Hong, PhD, Biomechanist, (Laboratory Manager, Health Professions)
- Tom Kernozek, PhD, FACSM, Biomechanist, (Health Professions)
- Patrick Grabowski, PT, PhD. OCS, CSCS, Motor Control/Biomechanics, (Health Professions)
- Robert Ragan, PhD, Computational Physicist (Physics)
Patrick Grabowski joins LIMS

Patrick Grabowski, PT, PhD, OCS, CSCS will join the UW-L Physical Therapy faculty and the LIMS in the Fall of 2013. Dr. Grabowski has practiced in Orthopedic and Sports Rehab for nearly a decade and has research expertise studying the neural control of movement. His research has focused on the visuomotor control of the upper extremity and on rehabilitation of athletes with prolonged symptoms after concussion in sport. In collaboration with clinicians at UW Hospitals and Clinics in Madison, he recently led the development of their Sport Concussion Rehab Program. Dr. Grabowski will continue to pursue neuromotor control studies with LIMS, focusing on neural mechanisms of rehab interventions and injury recovery. Dr. Grabowski is also interested in the evaluation of new technologies, such as the kio FLEX system, developed to improve clinical evaluation and outcomes (www.kayotechnology.com).

Recently Published or In Press Research

Kinetic comparison of the power development between power clean variations. Suchomel TJ, Wright GA, Kernozek TW, Kline DE. J Strength Cond Res. 2013 May 17. [Epub ahead of print]


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