La Crosse Institute For Movement Science (LIMS)

Thomas Kernozek, PhD, Director

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

Each year over 40 students from graduate and undergraduate programs across 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 lab.

The clinical biomechanics laboratory has a national reputation from published and presented work.

Current Projects

- Understanding mechanisms of non-contact ACL injuries in females.
- Evaluating patellofemoral joint stresses with running mechanics of females with patellofemoral pain.
- Examining the effects of multifrequency vibration on blood flow and muscle activation.
- Evaluating changes in bone stresses during running in those with a previous history of stress fracture.

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, Biomechanist, (Health Professions)
- Stacey Meardon, PT, ATC, PhD, Biomechanist/Motor Control, (Health Professions)
- Robert Ragan, PhD, Computational Physicist (Physics)

LIMS acquires HBM System

LIMS partnered with Motek Medical (Netherlands) to evaluate HBM system for the quantitative assessment of human movement. The HBM system uses motion capture, external forces and muscle activation to estimate muscle forces in real time. These measurements allow researchers to better understand tissue stresses of movement leading to acute/overuse injury or muscle force generation during rehabilitation exercises. The system is located in the 2,250 square foot clinical biomechanics laboratory.
LIMS Reputation Continues to Rise

LIMS in the Department of Health Professions enabled the Physical Therapy Program to reach in strategic goal of publishing 25 peer reviewed papers over a 3 year span. LIMS researchers accomplished this in two!!! This distinguishes the Physical Therapy program in the upper tier of scholarly output nationally in physical therapy education. This could not have been done without dedicated faculty and student scholars. Congratulations on a job well done!

Rose Excellence in Research Awarded to John Willson, Tom Kernozek, Rebecca Arndt, Dan Reznichek, & Scott Straker at the Combined Sections Meeting of the American Physical Therapy Meeting on 2/10/12 for their paper “Gluteal muscle activation during running in females with patellofemoral pain” published in Clinical Biomechanics.

Recently Published or In Press Research


