The Institute was created in the Fall of 2005 in the Health Science Center at the University of Wisconsin-La Crosse in the Department of Health Professions. The Institute brings together scientists and clinicians of various disciplines in the quest for new knowledge related to human movement, the identification of factors related to injury, the foundations of therapeutic exercise and injury prevention. Each year over 40 students from graduate and undergraduate programs across 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 undergraduate student internships in the lab. A graduate assistant from Exercise and Sport Science is also assigned to the lab. Many undergraduate students have presented at the National Conference on Undergraduate Research and at professional meetings in biomechanics and sports medicine. Graduate students have presented with faculty mentors at professional meetings in physical therapy, biomechanics and sports medicine.

Current Projects in the Lab...

- Evaluating changes in select biomechanical and physiological parameters of adolescents. The study is comparing the effectiveness of Nike IPOD devices and standard pedometers on monitoring activity level in 7th graders from Longfellow Middle School in La Crosse.

- Evaluating Ho Chunk native Americans without diabetes, pre-diabetes and diabetes on clinical and biomechanical factors. The goal is to contribute to a better understanding of the impact of diabetes in this population.

- Modeling the knee to better understand mechanisms of non-contact ACL injuries in females.

- Examining the factors which promote abnormal lower extremity alignment in runners.

- Establishing the reliability and validity of a clinical measure of gluteal muscle endurance.
LIMS Facilities

LIMS labs in the Health Science Center include a 1,500 square foot biomechanics and 1,700 square foot exercise physiology laboratory. The biomechanics laboratory includes an 8 camera motion analysis system and two force platforms, electromyography, seating, barefoot and in-shoe pressure measurement technology, and an electromagnetic tracking system. The exercise physiology laboratory includes a metabolic and gas analysis system for bike or treadmill use.

LIMS Scientists

Hanni Cowley, MSPT (Gundersen Lutheran Sports Medicine)

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)

Robert Ragan, PhD, Computational Physicist (Physics)

John Willson, MSPT, PhD, Biomechanist, (Health Professions)

New Scientists Join LIMS in 2007

Di-An Hong, PhD comes to UW-L from Motorola Labs in Schaumburg, IL. He initiated and managed the biomechatronics research program at Motorola for a number of years. He has experience in many advanced motion analysis technologies, motor control and biomechanics.

John Willson, PhD is a former UW-L physical therapy graduate student who completed his PhD in Movement Science at the University of Delaware in 2007. He is now an assistant professor in the Physical Therapy Program.

Both Dr. Willson and Dr. Hong enhance the research experience and capabilities of the LIMS Institute.

Visual representation obtained via Motion Capture
Dr. Tom Kernozek was a Keynote Speaker in Taipei, Taiwan

Tom Kernozek was a keynote speaker at the Taiwan Society of Biomechanics Meeting in Taipei on November 10-11, 2007. His paper, "In Search of Neuromuscular Anterior Cruciate Ligament Injury Mechanisms in Female Athletes in Landing", was published in the conference proceedings. Dr. Kernozek was an invited to lecture about his biomechanics research at the National Taiwan Normal University, Nation Taiwan University Medical School, the Chinese Cultural University and the National College of Physical Education during his stay in Taiwan.

Recent Publications and Publications in Review


Willson JD, Davis IS. (in review) Core Strength and Lower Extremity Mechanics During Jumping in Females with Patellofemoral Pain. Archives of Physical Medicine and Rehabilitation.
Recent Publications and Publications in Review (Continued)


**Greiner, TM** and Ball, KA. Statistical Analysis of the Three Dimensional Joint Complexes. Computer Methods in Biomechanics and Biomedical Engineering in revision.


Greiner, TM The Jargon of Pedal Movement. Foot and Ankle International 28:109-125


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