

Mr. Tracy Allan Dierks, ABD

PERSONAL

Personal Data

Hometown: Arlington, Nebraska
Date of Birth: April 5, 1975
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Business Data

Doctoral Candidate
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EDUCATION

Doctor of Philosophy

- University of Delaware, Newark, DE, *Expected May 2005*
College: Arts and Science
Department: Physical Therapy
Major: Biomechanics
Mentor: Dr. Irene Davis

Master of Science

- University of Nebraska at Omaha, Omaha, NE, August 2001
College: Education
Department: Health, Physical Education, and Recreation
Major: Exercise Science
Concentration: Biomechanics
Mentor: Dr. Nick Stergiou

Bachelor of Science

- University of Nebraska at Omaha, Omaha, NE, August 1999
College: Education
Department: Health, Physical Education, and Recreation
Major: Exercise Science
- Midland Lutheran College, Fremont, NE, 1993-1994
College: Education
Major: Secondary Education

PROFESSIONAL EXPERIENCE

1. **Research Assistant**, University of Delaware, *Summer 2001 to Present*
 - **Dissertation** – Joint coupling in runners with patellofemoral pain during a prolonged run.
 - Committee members – Dr. Irene Davis, Dr. John Scholz, Dr. Kurt Manal, and Dr. Joe Hamill.
 - **Dissertation Proposal** completed – August 27, 2004.
 - Laboratory duties include assisting in research design, data collection, data processing, and developing manuscripts for the Biomechanics Laboratory under the direction of Dr. Irene Davis.
 - Research questions are focused on running mechanics and the prevention of running related injuries.
 - Primary research project included collecting and processing data for a dual-site prospective investigation to determine the etiology and biomechanical factors in the development of stress fractures in female competitive runners.

2. **Graduate Assistantship**, University of Nebraska at Omaha, *Fall 1999 to Spring 2001*
 - Duties:
 - Teaching Assistant:
 - Undergraduate Biomechanics laboratory (*Fall 99 and Fall 00*).
 - Advanced Biomechanics laboratory (*Fall 99 and Fall 00*).
 - Laboratory instructor for Lab Methods in Exercise Science (*Fall 99 – Spring 01*).
 - Research Assistant
 - Assisted in research design, data collection, data processing, and development of manuscripts for the Biomechanics Laboratory under the direction of Dr. Nick Stergiou.
 - Specific works included evaluation of performance and human interaction with exercise equipment and a variety of projects relating to human gait, running injury mechanisms, basic lower extremity function and research methodology.

3. **Teaching Experience:**
 - Undergraduate Biomechanics, University of Nebraska at Omaha, *Summer 2000*.
 - Introduction to Microcomputers, Metropolitan Community College, Omaha, Nebraska (two sections), *Summer 2000*.
 - Undergraduate Biomechanics Laboratory, University of Nebraska at Omaha, *Fall 1999, 2000*.
 - Laboratory Methods in Exercise Science, Undergraduate and Graduate, University of Nebraska at Omaha, *Fall 1999 to Spring 2000*.

4. Personal Trainer at 24hr Fitness, Omaha, Nebraska, *October 1998 to August 1999*.

5. Physical Therapy volunteer at Bergan Mercy Hospital, Omaha, Nebraska, *Summer 1996*.

RESEARCH INTERESTS

1. Mechanisms contributing to lower extremity running injuries.
 - Specifically, methods of joint coupling, impact forces, shock attenuation, injury history, and structural alignment.
2. The role of variability in running mechanics and running injury prevention.
 - Specifically, methods of Dynamical Systems Theory and Chaos Theory.
3. The contribution of muscular and nonmuscular forces to movement control and coordination.

MANUSCRIPTS AND AUTHORSHIPS

Dierks, TA, & McClay Davis, I. Discrete and continuous joint coupling relationships in uninjured recreational runners. *Medicine and Science in Sports and Exercise* (In Review).

DeLeo, AT, **Dierks, TA**, Ferber, R, & McClay Davis, I. (2004). Lower extremity joint coupling during running: a current update. *Clinical Biomechanics*, 19, 983-991.

Dierks, TA, Davis, I, & Hamill, J. (2004). Lower extremity joint coupling in runners who developed patellofemoral pain syndrome. Proceedings of the 28th annual convention of ASB, Portland, Oregon, September 2004.

Dierks, TA, & Davis, I. (2004). Lower extremity joint coupling and patellofemoral joint pain during running. *Medicine and Science in Sports and Exercise*, 36(5), s56.

McClay Davis, I, **Dierks, TA**, Ferber, R, & Hamill, J. (2003) Lower extremity mechanics in patients with patellofemoral joint pain: a prospective study. Proceedings of the 27th annual convention of ASB, Toledo, Ohio, September 2003.

Dierks, TA, & McClay Davis, I. (2003). Discrete and continuous joint coupling during running. Proceedings of the 27th annual convention of ASB, Toledo, Ohio, September 2003.

Dierks, TA, McClay Davis, I, & Ferber, R. (2003). Gender differences in continuous joint coupling variables during running. *Medicine and Science in Sports and Exercise*, 35(5), s89.

McClay Davis, I, **Dierks, TA, & Ferber, R.** (2003). Gender differences in discrete joint coupling variables during running. *Medicine and Science in Sports and Exercise*, 35(5), s89.

McClay Davis, I, Ferber, R, **Dierks, TA**, Butler, RJ, & Hamill, J. (2002). Variables associated with the incidence of lower extremity stress fractures. Book of Abstracts 2002 World Congress of Biomechanics, Calgary, Alberta, Canada.

Buzzi, UH, Stergiou, N, Giakas, G, **Dierks, TA, & Georgoulis, A.** (2001). "The effect of ACL reconstruction on locomotor variability." Proceedings of the 25th annual convention of ASB, San Diego, California, August 2001.

Dierks, TA, Stergiou, N, Buzzi, UH, Keenan, SM, & Heidel, J. (2001). “The effect of speed on performer variability during locomotion.” Proceedings of the 25th annual convention of ASB, San Diego, California, August 2001.

Morley, J, Stergiou, N, and **Dierks, TA**, Blanke, D, & French, J. (2001). “An examination in ground reaction forces of runners with various degrees of pronation. Proceedings of the 24th annual convention of ASB, San Diego, California, August 2001

Stergiou, N, Scholten, SD, Houser, J, **Dierks, TA**, & Blanke, D. (2000). “Segmental interactions during running over obstacles of increasing height.” Proceedings of the 24th annual convention of ASB, Chicago, Illinois, July 2000.

Stergiou, N, Scholten, SD, Jensen, JL, **Dierks, TA**, and Blanke, D. (2000). “Intralimb coordination during running over obstacles of different heights.” Proceedings of the 24th annual convention of ASB, Chicago, Illinois, July 2000, pg. 83-84.

Funding / Grants

- Graduate Travel Fund Award, \$600. (University of Delaware, 2004).
- University Committee on Research, \$350. (University of Nebraska at Omaha, 2001).

Technical Experience

1. Video Equipment
 - Vicon Oxford Metrics 3D Motion Analysis System
 - Peak Performance Technologies Motus Motion Measurement System.
2. Force/Timing Measurement
 - Bertec Force Platform system, model 6090S
 - Kistler Force Platform system, model 9281B
 - PCB Accelerometer
3. Muscle Function and Electrophysiology
 - Biodex Medical Systems Isokinetic Dynamometer
 - 16 channel Motion Labs EMG, surface and indwelling electrodes
 - 2 channel Delsys EMG
4. Exercise Physiology Related Instrumentation
 - Graded Exercise Testing
 - Treadmill/Cycle ergometer
 - Electrocardiograph
 - Body Composition – Skinfold calipers, Skindex calipers, Submersion tank – Chatillon scale
 - Pulmonary Function – Collins 13.5 liter spirometer with kymograph, Neumocheck

5. Computer Programming/Software Experience
 - Visual 3D (C-Motion Inc.)
 - Move 3D (NIH)
 - Lab View
 - Microsoft Office – Word, Excel, Access, PowerPoint
 - Microsoft Frontpage
 - SPSS statistical package
 - Microsoft Visual C++
 - Chaos Data Analyzer

PROFESSIONAL MEMBERSHIPS

- American Society of Biomechanics
- American College of Sports Medicine
- Nebraskan American Alliance for Health, Physical Education, Recreation, and Dance
- Golden Key National Honors Society
- Who's Who Among Students in American Universities & Colleges

HONORS & ACTIVITIES

- Regular Participant in the American College of Sports Medicine annual convention.
- Regular Participant in the American Society of Biomechanics annual convention.
- Attended NIH Pediatric and Adult Foot and Ankle conference (Nov. 2003).
- The Outstanding Graduate Service Award in Exercise Science, University of Nebraska at Omaha, 2001.
- Graduated Suma Cum Laude, University of Nebraska at Omaha, May 1999.
- Undergraduate Biomechanics Award, Fall 1997.
- Dean's Honor List.
- Omicron Delta Kappa nominee.
- PEK nominee.
- Basketball Athletic scholarship and Cross Country Athletic scholarship, Midland Lutheran College, Fall/Spring 1993/94.
- Guarantee Mutual Life Company scholarship, Fall/Spring 1994.
- R.L. Fredstrom Funded scholarship, Fall 1993.
- Trustee Achievement Award, Fall 1993.
- Endowed scholarship, Fall 1993.
- Honor scholarship, Fall 1993, 1994, 1995.
- Arlington Education Foundation scholarship, Fall 1993.
- 24hr Fitness personal trainer certification, Fall 1998.
- APEX Nutrition certification, Fall 1998.
- Volunteer at Munroe Meyer Institute for the mentally handicapped, Spring 1999.

REFERENCES

1. **Irene Davis**, PhD, PT
University of Delaware
Professor, Department of Physical Therapy

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2. **Joseph Hamill**, PhD
University of Massachusetts
Professor and Chair, Department of Exercise Science.
Associate Dean, School of Public Health and Health Sciences.

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3. **Nick Stergiou**, PhD
University of Nebraska at Omaha
Associate Professor, Health, Physical Education & Recreation, College of Education

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