

## **Sara R. Koehler, M.S.**

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### **Education**

#### **Northwestern University, Evanston, IL**

Ph.D. Candidate in Biomedical Engineering

#### **Northwestern University, Evanston, IL**

Master of Science in Biomedical Engineering, December 2005

Thesis title: An Investigation of Shock-Absorbing Prosthetic Components for Persons with Transfemoral Amputations

#### **University of Illinois Urbana-Champaign, IL**

Bachelor of Science in General Engineering (Honors), January 2001

Minor in Bioengineering

### **Research Experience**

#### **Northwestern University Prosthetics Research Laboratory, Chicago, IL (2001-present)**

- Ph.D. candidate under the advisement of Steven A. Gard, Ph.D., Director
- Currently investigating the effect of prosthetic alignment on transfemoral amputee gait

#### **Rush-Presbyterian-St. Luke's Gait Analysis Laboratory, Chicago, IL (2001)**

- Research intern under Deborah Hurwitz, Ph.D., Director
- Performed data acquisition and analysis for all gait evaluations and assisted with manuscript preparation

#### **NSF Summer Undergraduate Program in Engineering Research, University of California-Berkeley (2000)**

- Research fellow in the Hand, Upper Extremity, and Microvascular Surgery Laboratory under Edward Diao, M.D.
- Conducted research on the biomechanical effect of growth factors on the repair time of FDP tendons

#### **Microelectromechanical Systems Laboratory, University of Illinois Urbana-Champaign (2000)**

- Research assistant under N.R. Aluru, Ph.D.
- Measured how different pH solutions affect swelling in functional hydrogel structures used in microfluidic channels

#### **Biomedical Engineering Department, University of Minnesota Twin Cities (1998)**

- Undergraduate volunteer
- Assisted in intrapericardial drug delivery research experiments

### **Teaching & Service Activities**

Graduate Student Volunteer for Get-A-Grip: A Middle School Engineering Challenge at Bateman Elementary School, Chicago, IL (Winter 2008)

Lincoln Hall Middle School Eighth Grade Science Fair Judge (January 2008)

Guest Lecturer for Northwestern University Prosthetics-Orthotics Program (Fall 2006 & Spring 2007)

Teaching Assistant for BME 366 (Biomechanics of Movement) at Northwestern University (Spring 2002)

Laboratory Assistant for GE 103 (Engineering Graphics and Design with AutoCAD) at University of Illinois Urbana-Champaign (1999-2000)

## Publications

1. Koehler, S.R., Gard, S.A., Meier, M.R. "Limb Compliance and Shock-Absorbing Pylons in Persons with Transfemoral Amputations." 12<sup>th</sup> World Congress, International Society for Prosthetics & Orthotics, July 29-August 3, Vancouver, British Columbia, Canada, 2007 (**Podium Presentation**).
2. Koehler, S.R. "An Investigation of Shock-Absorbing Prosthetic Components for Persons with Transfemoral Amputations." Capabilities, 14(1): 18-19. Northwestern University, Chicago, IL USA, 2006.
3. Koehler, S.R., Gard, S.A., Meier, M.R. "The Effect of Shock-Absorbing Prosthetic Components on Ground Reaction Force Profiles in Persons with Transfemoral Amputations." 10<sup>th</sup> Annual Meeting, Gait & Clinical Movement Analysis Society, April 6-9, Portland, OR, USA, 2005 (**Podium Presentation**).
4. Koehler, S.R., Gard, S.A., Meier, M.R. "An Investigation of Shock-Absorbing Components in Persons with Unilateral Transfemoral Amputations." Joint Meeting, American Academy of Orthotists and Prosthetists and Association of Children's Prosthetic Orthotic Clinics, March 16-19, Orlando, FL, USA, 2005 (**Podium Presentation**).
5. Koehler, S.R. "An Investigation of Shock-Absorbing Components in Transfemoral Prostheses." Annual Whitaker Foundation Biomedical Engineering Research Conference, August 12-15, San Diego, CA, USA, 2004 (**Poster Presentation**).
6. Koehler, S.R., Gard, S.A., Meier, M.R. "An Investigation of Shock-Absorbing Components in Persons with Unilateral Transfemoral Amputations." 11th World Congress, International Society for Prosthetics & Orthotics, August 1-6, Hong Kong, 2004 (**accepted for Podium Presentation**).
7. Koehler, S.R., Gard, S.A., Meier, M.R., Cassar, M., Lipschutz, R. "Stance-Phase Knee Flexion in Persons with Unilateral Transfemoral Amputations Walking on an Otto Bock 3R60 EBS Knee: A Preliminary Report." 9th Annual Meeting, Gait & Clinical Movement Analysis Society, April 21-24, Lexington, KY, USA, 2004 (**Poster Presentation**).
8. Koehler, S.R. "Comparing Shock-Absorbing Prosthetic Components in Unilateral Transfemoral Amputees." Capabilities, 11(4):9-10. Northwestern University, Chicago, IL, USA, 2003.
9. Koehler, S.R. "A Biomechanical Analysis of the Effect of bFGF on the Repair Time of the Flexor Digitorum Profundus Tendon." Summer Undergraduate Program in Engineering Research at University of California Berkeley (SUPERB), June-August, Berkeley, CA, USA, 2000 (**Podium Presentation**).

## Relevant Press Releases

1. "Prosthetic Study Finds No Extra Shock Absorption" in *Biomechanics*, pg. 15. June 2005.

## Fellowships, Awards, & Honors

- Whitaker Foundation Graduate Fellowship (2001-2006)
- GCMAS Student Conference Award funded through the Whitaker Foundation, Portland, OR (2005)
- GCMAS Student Conference Award funded through the Whitaker Foundation, Lexington, KY (2004)
- GCMAS Student Conference Award funded through the Whitaker Foundation, Wilmington, DE (2003)
- NSF Fellow for the Summer Undergraduate Program in Engineering Research at University of California-Berkeley (2000)
- James F. Lincoln Arc Welding Award for Progress in Engineering Design and Application (2000)
- Department of General Engineering Distinguished Service Award, University of Illinois Urbana-Champaign (2000)
- University of Illinois College of Engineering Award, Urbana-Champaign, IL (1999)
- University of Illinois Academic Achievement Scholarship, Urbana-Champaign, IL (1996-2000)
- Robert C. Byrd National Honors Scholarship (1996-2000)