

## MICHAEL S. ORENDURFF

### WORK EXPERIENCE

---

5/10—Present: Director of Activity Monitoring and Outcomes Services, Orthocare Innovations, Inc.

6/07—5/10: Division Director, Movement Science Laboratory, Texas Scottish Rite Hospital for Children, Dallas, Texas, USA.

- Ten peer-reviewed publications in one year: March 2009-March 2010
- Medical intervention decisions and strategies, outcomes assessment and evidence-based medicine, especially related to locomotor performance and injury prevention.
- Supervised laboratory staff including engineers, biomechanists, technicians, interns and administrative assistants; grant writing, research design and project management, supervise data collection, analysis, presentation and publication. Equipment purchasing, budgets, employee hiring, management and annual reviews.
- Collaborative research with several physicians & engineers. Projects included gait outcomes of non-surgical treatments for clubfoot; gait outcomes of periacetabular osteotomies in dysplastic hips; amputee gait analysis and oxygen consumption in children; oxygen consumption in idiopathic adolescent scoliosis during exercise; three dimensional spine motion in idiopathic scoliosis post fusion; development of a controlled energy storage and release prosthetic foot; community mobility assessment following treatments; detecting exercise in community mobility data; sprint and rest intervals in soccer games and playground behavior using wearable sensors.
- Member, Texas Scottish Rite Hospital for Children Research Advisory Panel—review and approve all scientific projects and funding undertaken by researchers and medical staff.

6/09—Present: Clinical Instructor, Orthotics - Prosthetics Program, University of Texas Southwestern Medical School.

12/01—7/07: Research Health Scientist, Motion Analysis Laboratory Supervisor, Center of Excellence for Limb Loss Prevention and Prosthetic Engineering, Rehabilitation Research & Development, Veterans Administration Puget Sound Health Care System, Seattle, Washington, USA.

- Medical intervention decisions and strategies, outcomes assessment and evidence-based medicine, especially related to gait, outcomes and injury prevention.
- Supervised 3 laboratory engineers, 2 students and 2 interns; research design and project management, grant applications, data collection, analysis, presentation and publication. Equipment, budgets, employee hiring, management and annual review.
- Collaborative research with several physicians & engineers. Funded projects include:
  - Metabolic cost savings for amputees walking in the Controlled Energy Storage and Release (CESR) foot; investigator, project manager, \$750,000, 3 years.
  - Treatment outcomes of end-stage ankle arthritis; investigator, project manager; \$593k, 3 years, data collection underway; 3 conference abstracts, 1 paper.

- Equinus contractures and forefoot pressure in individuals with diabetes; investigator project manager; \$403,000, 3 years; data collection complete, 3 conference abstracts, 1 journal paper.
- Kinematics and kinetics of how humans turn; investigator; \$750,000, 3 years; data collection complete; 4 abstracts, 6 journal papers.
- The effects of microprocessor-controlled prosthetic knees on lower limb biomechanics, metabolic cost, cognitive function and perceived exertion during ambulation; investigator, project manager; \$150,000, 3 years; completed: 4 abstracts, 4 journal papers.
- Developing new kinematic and kinetic models of the human foot; investigator; \$125,000, 2 years; data collection complete.

1/06—7/07: Lecturer, Department of Rehabilitation Medicine, School of Medicine, University of Washington, Seattle, Washington, USA.

- Teaching and supervisory duties; consultant.

5/93—12/01: Clinical Biomechanist; Research Coordinator, Motion Analysis Laboratory, Shriners Hospital for Children, Portland, Oregon, USA.

- Performed lower extremity range of motion exams, manual muscle testing, and computerized gait analysis on approximately 2000 children over 8 ½ years. Consulted with physicians on treatment plans, outcomes assessment.
- Managed all motion analysis laboratory research. Collaborated with physicians, residents and fellows on research projects. Efficacy of surgical interventions in children with cerebral palsy and other neuromuscular pathologies; predicative accuracy of gait analysis methods; muscle modeling research.

## **TEACHING / MENTORING EXPERIENCE**

- Support and mentor interns, graduate students, residents, fellows and attending physicians with diverse cultural and educational backgrounds who are conducting research in the TSRHC Movement Science Laboratory. Research design, grant writing, statistics and project management. Three former employees have gone to medical school from my laboratories.
- Lecturer for undergraduate Biomechanics 1 and Biomechanics 2 class at Bastyr University, Kenmore, Washington, USA. Developed curriculum, lectures, laboratory experiences, examinations; Collected full-body kinematics and kinetic data of individuals performing running, cutting, jumping, kicking and throwing activities and produced an interactive didactic software application for students to grasp the biomechanics of human movement; 2006- 2007 (three classes).
- Lecturer for ME 445 graduate engineering biomechanics class at the University of Washington; spring 2005.
  - Collaborated with other instructors to develop the lecture, laboratory experience and exam questions on gait analysis.

- Instructor for graduate course on clinical gait analysis at Oregon State University, 1999
  - Developed curriculum and was the sole instructor for the course.
- Graduate teaching assistant and laboratory instructor for undergraduate biomechanics course at Oregon State University, 1990. Lab and exam grading, lab lectures and supervision.

### **GRANT WRITING EXPERIENCE      current success rate 60%**

- Primary author: *IDEAS prosthetic outcomes system: a patient-centered integrated-domain approach*. NIH. \$2,615,206, 5 years.
- Primary author: *Treatment outcomes for ankle arthritis* **Funded** by the Department of Veterans Affairs. \$574,000/ 3 years.
- Primary author: *Metabolic cost savings for transtibial amputees wearing the CESR foot* **Funded** by the Department of Veterans Affairs. \$750,000, 3 years.
- Primary author: *Plantarflexor length, ankle motion and foot pressure in patients with diabetes* **Funded** by the Department of Veterans Affairs. \$403,000, 3 years.
- Primary author: *Outcomes from Treatment of End Stage Ankle Arthritis* NIH Clinical Trial Planning Grant (R34) Submitted to NIAMS. \$99,000, 1 year.
- Primary author: *3D spine motion and low back pain in transfemoral amputees* Submitted to Department of Veterans Affairs. \$750,000/ 3 years.
- Supporting author: *Kinematics and kinetics of how humans turn* **Funded** by the Department of Veterans Affairs. \$750,000, 3 years.
- Supporting author: *Quantifying Individual Foot Bone Motion During the Stance Phase of Gait* Submitted to Department of Veterans Affairs. \$750,000/ 3 years.
- Assisted in developing dozens of grant applications to the NIH, Veterans Administration, Department of Education, Department of Defense, etc. Experience in ghost writing grants, research and statistical design, rapid pilot data acquisition, power analysis, hypothesis outline, NIH electronic grant submission process.

### **CLINICAL MOTION ANALYSIS EXPERIENCE**

Over 18 years experience conducting computerized kinematic and kinetic analysis of individuals with gait disorders. Skills include:

- Training individuals to perform computerized movement analysis on a variety of subjects
- Placing reflective markers on subjects consistent with anatomically-based full body models.
- Eliciting and recording consistent walking and running patterns in pediatric and adult subjects
- Surface and indwelling EMG electrodes placement and analysis
- Foot pressure assessment using Novel Emed platform & Pedar insoles and Tekscan platform & insole systems.

- Metabolic (VO<sub>2</sub>) assessment during overground gait, overground running, outdoor cycling, in situ non-laboratory exercise using Sensormedics Vmax ST and Cosmed K4 systems.
- Lower extremity passive range of motion exam—made a video to train others in correct technique.
- Manual muscle test/assessment of muscle tone.
- Processing data and extracting variables for statistical analysis.
- Interpret gait data for physicians making clinical decisions and for research projects
- Working clinical understanding of the etiology and pathophysiology of ACL injury, Achilles rupture, stress fracture, molecular signaling cascades in response to training, osteoarthritis, talipes equinovarus, development dysplasia of the hip, scoliosis, cerebral palsy, amputation, diabetes, multiple sclerosis, traumatic brain injury, stroke.

### **ENGINEERING SUPPORT EXPERIENCE**

Experience with model development and evaluation using software such as Vicon BodyBuilder and Peak Motus.

- Manage several engineers writing custom software to evaluate joint biomechanics during human movement using MATLAB, BodyLanguage, Labview, C++ and others.
- Developed models of the lumbar spine, ankle and foot, shoulder joint and 16-segment full body models with 3D Euler angle calculation and full inverse dynamics between adjacent segments.
- Computer networking experience in a motion lab setting with multiple workstations connected to Vicon MX, 612 and 370 Systems. Computer maintenance and expert software support experience with programs such as Vicon Nexus, Workstation, Polygon, Word, Excel, PowerPoint, etc.
- Experience with various analog to digital interfaces such as accelerometers, force plates, EMG electrodes, step activity monitors, etc., including managing software engineers programming for data acquisition. Installation of force plates, pressure platforms, etc; concrete and rebar construction. Funded, selected and installed 4 complete commercial motion analysis systems.

### **EDUCATION**

Doctor of Philosophy student, Rocky Mountain University, Provo, Utah. Estimated graduation date, June, 2013

Masters of Science in Human Performance–Biomechanics, Oregon State University, Corvallis, Oregon, 1997. 90+ units of graduate credit.

Bachelor of Science in Exercise Science, Portland State University, Portland, Oregon, 1990

### **SELECTED PEER-REVIEWED PUBLICATIONS**

- Orendurff, M.S.**, Walker, J.D., Jovanovic, M., Tulchin, K., Levy, M., Hoffman, D. Intensity and duration of intermittent exercise and recovery during a soccer match. *Journal of Strength and Conditioning Research* 2010 Feb 9. [Epub ahead of print]
- Orendurff, M.S.**, Rohr, E.S., Segal, A.D., Medley, J.W., Green, J.R., Kadel, N.J. Biomechanical analysis of stresses to the fifth metatarsal bone during sports maneuvers: Implications for fifth metatarsal fractures. *Physician and Sports Medicine* 2009, 37: 87-92. PMID: 20048514,
- Orendurff, M.S.**, Bernatz, G.C., Schoen, J.A., Klute, G.K. Kinetic mechanisms to alter walking speed. *Gait & Posture* 2008 27:603-610. PMID: 17920886, Cited by: 2
- Orendurff, M.S.**, Rohr, E.S., Segal, A.D., Medley, J.W., Green, J.R., Kadel, N.J. Regional foot pressure during running, cutting, jumping, and landing. *American Journal of Sports Medicine* 2008, 36:566-71. PMID: 17989168, Cited by: 4
- Orendurff, M.S.**, Schoen, J.A., Bernatz, G.C., Segal, A.D., Klute, G.K. How humans walk: Bout duration, steps per bout and rest duration. *Journal of Rehabilitation Research & Development* 2008, 45: 1077-1090. PMID: 19165696, Cited by: 4
- Orendurff, M.S.**, Segal, A.D., Klute, G. K., McDowell, M.L., Pecoraro, J.A., Czerniecki, J.M. Gait efficiency using the C-leg. *Journal of Rehabilitation Research & Development* 2006, 43:239-46. PMID: 16847790, Cited by: 17
- Orendurff, M.S.**, Segal, A.D., Berge, J.S., Flick, K.C., Spanier, D., Klute, G.K. The kinematics and kinetics of turning: Limb asymmetries associated with walking a circular path. *Gait & Posture* 2006, 23:106-11. PMID: 16311202, Cited by: 27
- Orendurff, M.S.**, Rohr, E.S., Sangeorzan, B.J., Weaver, K., Czerniecki, J.M. Ankle equinus accounts for only a small amount of the increased forefoot plantar pressure observed in patients with diabetes. *Journal of Bone and Joint Surgery (British)* 2006, 88:65-8. PMID: 16365123, Cited by: 7
- Orendurff, M.S.**, Segal, A.D., Aiona, M.D., Dorociak, R.D. Triceps surae force, length and velocity during walking. *Gait & Posture* 2005, 21:157-163. PMID: 15639394, Cited by 2
- Orendurff, M.S.**, Segal, A.D., Klute, G.K., Berge, J.S., Kadel, N.J. The effect of walking speed on center of mass displacement. *Journal of Rehabilitation Research & Development* 2004, 41:829-34. PMID: 15685471, Cited by: 19
- Orendurff, M.S.**, Aiona, M.D., Dorociak, R.D., and Pierce, R.P. Length and force of the gastrocnemius and soleus during gait following tendo Achilles lengthenings in children with equinus. Nominated for GCMAS best paper 2000; *Gait & Posture* 2002, 15:130-135. PMID: 11869906, Cited by: 20
- Tulchin, K., **Orendurff, M. S.** and Karol, L. A comparison of multi-segment foot kinematics during level overground and treadmill walking. *Gait Posture* 2010, 31(1): 104-108. PMID: 19854652
- Tulchin, K., **Orendurff, M.S.**, Adolfsen, S., Karol, L. The Effects of Walking Speed on Multi-Segment Foot Kinematics in Adults. *Journal of Applied Biomechanics*, 2009, 25: 377-386. PMID: 20095459, Cited by: 1
- Glaister, B.C., Schoen, J.A., **Orendurff, M.S.**, Klute, G.K. A mechanical model of the human ankle in the transverse plane during straight walking: implications for prosthetic design. *Journal of Biomechanical Engineering* 2009, 131: 034501. PMID: 19154072

Segal, A.D., **Orendurff, M.S.**, Czerniecki, J.M., Shofer, J.B., Klute, G.K. Transtibial amputee joint rotation moments during straight-line walking and a common turning task with and without a torsion adapter. *Journal of Rehabilitation Research and Development*, 2009; 46:375-83. PMID: 19675989

Tulchin, K., Campbell, S., Browne, R., **Orendurff, M.S.** Effect of sample size and reduced number of principle components on the Gillette Gait Index. *Gait & Posture*, 2009, 29:526-9. PMID: 19233654, Cited by: 1

Morgenroth, D.C., Shakir, A., **Orendurff, M.S.**, Czerniecki, J.M. Low-back pain in transfemoral amputees: Is there a correlation with static or dynamic leg-length discrepancy? *American Journal of Physical Medicine and Rehabilitation* 2009, 88:108-113. PMID: 19169176, Cited by: 1

Glaister, B.C., **Orendurff, M.S.**, Schoen, J.A., Bernatz, G.C., Klute, G.K. Ground reaction forces and impulses during a transient turning maneuver. *Journal of Biomechanics* 2008, 41:3090-3. PMID: 18804765

Segal, A.D., **Orendurff, M.S.**, Czerniecki, J.M., Shofer, J.B., Klute, G.K. Local Dynamic Stability in turning and straight-line gait. *Journal of Biomechanics* 2008, 41:1486-93. PMID: 18405902

Glaister, B.C., Schoen, J.A., **Orendurff, M.S.**, Klute, G.K. Mechanical behavior of the human ankle in the transverse plane while turning. *IEEE Transactions on Neural Systems & Rehabilitation Engineering* 2007, 15:552-9. PMID: 18198713, Cited by: 1

Glaister, B.C., **Orendurff, M.S.**, Schoen, J.A., Klute, G.K. Rotating horizontal ground reaction forces to the body path of progression. *Journal of Biomechanics* 2007, 40:3527-32. PMID: 17597134 Cited by: 2

Glaister, B.C., Bernatz, G.C., Klute, G.K., **Orendurff, M.S.** Video task analysis of turning during activities of daily living. *Gait & Posture* 2007, 25:289-94. PMID: 16730441, Cited by 19

Yuen, T., **Orendurff, M.S.** A comparison of gastrocnemius muscle length during gait using anatomic, cadaveric and MRI models. Gait and Clinical Movement Analysis Society Conference, Wilmington, Delaware, 2003. Nominated for GCMAS best paper 2003; *Gait & Posture*. 2006, 23:112-7. PMID: 16311203, Cited by: 8

Segal, A.D., **Orendurff, M.S.**, Klute, G.K., McDowell, M.L., Pecoraro, J.A., Shofer, J., Czerniecki, J.M. Kinematic and kinetic comparisons of transfemoral amputee gait using C-Leg® and Mauch SNS® prosthetic knees. *Journal of Rehabilitation Research & Development* 2006, 43:857-70. PMID: 17436172, Cited by: 14

Williams, R.M., Turner, A.P., **Orendurff, M.S.**, Segal, A.D., Klute, G.K., Pecoraro, J., Czerniecki, J. Does having a computerized prosthetic knee influence cognitive performance during amputee walking? *Archives of Physical Medicine & Rehabilitation* 2006, 87:989-94. PMID: 16813788, Cited by: 6

Klute, G.K., Berge, J.S., **Orendurff, M.S.**, Williams, R.M., Czerniecki, J.M. Prosthetic intervention effects on activity of lower-extremity amputees. *Archives of Physical Medicine & Rehabilitation* 2006, 87:717-22. PMID: 16635636, Cited by: 15

Flick, K. C., **Orendurff, M. S.**, Berge, J. S., Segal, A. D., Klute, G. K. Comparison of Human Turning Gait with the Mechanical Performance of Lower Limb Prosthetic

Transverse Rotation Adaptors. *Prosthetics and Orthotics International* 2005, 29:73-81. PMID: 16180379, Cited by: 4

Segal, A.D., Rohr, E., **Orendurff, M.S.**, Shofer, J, O'Brien, M, Sangeorzan, B.J., The effect of walking speed on peak plantar pressure. *Foot & Ankle International* 2004, 25:926-33. PMID: 15680109, Cited by: 22

Kadel, N.J., Segal, A.D., **Orendurff, M.S.**, Shofer, J.B, and Sangeorzan, B.J. The efficacy of two methods of ankle immobilization in reducing gastrocnemius, soleus and peroneal muscle activity during stance phase of gait. *Foot & Ankle International* 2004; 25:406-9. PMID: 15215025, Cited by: 5

Aktas, S., Aiona, M.D., **Orendurff, M.S.** Evaluation of rotational gait abnormality in the patient with cerebral palsy. *Journal of Orthopedic Research* 2000, 20:217-221. PMID: 10739285, Cited by 22

Freeman, D., **Orendurff, M.S.**, Moor, M. Improving knee extension with floor reaction AFO's in a myelomeningocele patient with 20° knee flexion contractures. (1999) *Journal of Prosthetics and Orthotics* 11:3, 63-68. Cited by: 5

#### **SELECTED PEER-REVIEWED PRESENTATIONS**

---

**Orendurff, M.S.**, Do, V.K., Jeans, K.A., Karol, L.A. Real world walking behavior in children treated for clubfoot. *Joint ESMAC & GCMAS meeting (JEGM)*, Miami, 2010.

**Orendurff, M.S.**, Do, V.K., Newman, C., Williams, A.A., Reiss, T.M., Tripps, D. Real world walking behavior as an outcome measure: bout duration distributions for typically developing adolescents. *Joint ESMAC & GCMAS meeting (JEGM)*, Miami, 2010.

**Orendurff, M.S.**, Walker, J.D., Levy, M., Hoffman, D. Intensity and duration of work and recovery bouts during soccer matches. *American College of Sports Medicine Conference*, Seattle, 2009.

**Orendurff, M.S.**, Schoen, J.A., Bernatz, G.C., Segal, A.D., Klute, G.K. Speed change or turn initiation: Ankle moments in turning. *Gait and Clinical Movement Analysis Society Conference*, Denver, CO, 2009.

**Orendurff, M.S.**, Rohr, E.S., Segal, A.D., Medley, J.W., Green, J.R., Kadel, N.J. Metatarsal fracture mechanism: Acceleration loads the fifth metatarsal more than cutting. *International Foot and Ankle Biomechanics Conference*, Bologna, Italy, 2008

**Orendurff, M.S.**, Schoen, J.A., Bernatz, G.C., Segal, A.D., Klute, G.K. How humans walk: Bout duration, steps per bout and rest duration. *International Foot and Ankle Biomechanics Conference*, Bologna, Italy, 2008

**Orendurff, M.S.**, Rohr, E.S., Segal, A.D., Medley, J.W., Green, J.R., Kadel, N.J. Metatarsal Fracture Prevention: Can a more flexible and cushioned boot reduce 5<sup>th</sup> metatarsal pressures during sporting maneuvers? *Emed Scientific Meeting*, Dundee, Scotland, 2008

**Orendurff, M.S.**, Bernatz, G.C., Wheeler, J., Rodney, D., Schoen, J.A., Klute, G.K. Kinetic mechanisms used to change gait speed. *Gait and Clinical Movement Analysis Society Conference*, Springfield, MA, 2007.

- Orendurff, M.S.**, Glaister, B.C., Bernatz, G.C., Huff, E., Segal, A.D., Klute, G.K. How humans negotiate corners. *Dynamic Walking Conference*, Ann Arbor, MI, 2006.
- Orendurff, M.S.**, Rohr, E.S., Segal, A.D., Kweon C, Medley, J.M., Green, J.R., Kadel, N.J. Regional foot pressure during running, cutting, jumping and landing. *International Society of Biomechanics Conference*, Cleveland, OH, 2005.
- Orendurff, M.S.**, Rohr, E.S., Sangeorzan, B.J., Weaver, K., Czerniecki, J.M. Ankle equinus accounts for only a small amount of the increased forefoot plantar pressure observed in patients with diabetes. *American Orthopedic Foot & Ankle Society Conference*, Boston, MA, 2005. **Winner of the Mann Award for best clinical paper.**
- Orendurff, M.S.**, Segal A.D., Flick K.C., Berge J.S., Klute, G.K. How do humans turn? The kinematics and kinetics of walking a circular path. *Gait and Clinical Movement Analysis Society Conference*, Portland, OR. 2005.
- Orendurff, M.S.**, Rohr E.S., Sangeorzan B.J, Czerniecki, J.M. Do plantarflexion contractures contribute to high forefoot pressures in diabetic subjects? *Gait and Clinical Movement Analysis Society Conference*, Portland, OR. 2005.
- Orendurff, M.S.**, Segal A.D., Berge J.S., Flick, K.C., Klute, G.K. Was Inman wrong? Center of mass motion and oxygen cost. *Gait and Clinical Movement Analysis Society Conference*, Portland, OR. 2005.
- Orendurff, M.S.**, Segal, A.D., Berge, J.S., Flick, K.C., Klute, G.K. Gait efficiency: Center of mass motion, VO<sub>2</sub> and walking speed. *American Society of Biomechanics Conference*, Portland, Oregon, 2004.
- Orendurff, M.S.**, Segal, A.D., Sangeorzan, B.J., Kadel, N.J., Forefoot pressure during gastrocnemius stretching, *Gait and Clinical Movement Analysis Society Conference*, Wilmington, Delaware, 2003.
- Orendurff, M.S.** Hamstring length during gait does not change after surgical hamstring lengthening. *World Congress of Biomechanics*, Calgary, 2002
- Orendurff, M.S.** Surgical hamstring lengthening increases concentric velocity during gait *World Congress of Biomechanics*, Calgary, 2002
- Orendurff, M.S.**, Aiona, M.D., Dorociak, R.D., Pierce, R.P. (2000) Length and force of the gastrocnemius and soleus during gait following tendo Achilles lengthenings in children with equinus. *Gait and Clinical Movement Analysis Society Annual Conference*. Rochester, MN, 2000. Nominated for best paper GCMAS 2000.
- Orendurff, M.S.**, Nichols, M.P., Kinzey, S.J., Dorociak, R.D., Pierce, R.A., Aiona, M.D. Strength, joint range, and bony deformity: Determining the causes of crouch gait in children with cerebral palsy. *Gait and Clinical Movement Analysis Society Annual Conference*, Rochester, MN, 2000.
- Orendurff, M.S.**, Dorociak, R.D., Pierce R.A. Gastrocnemius kinematics and kinetics during walking. *International Society of Biomechanics Conference*, Calgary, 1999.
- Orendurff, M.S.**, Dorociak, R.D. Plantarflexor force and length during walking. *American Society of Sports Medicine Conference*, Seattle, 1999.
- Orendurff, M.S.**, Chung, J.S., Pierce, R.A. Limits to passive range of motion and the effect on crouch gait in children with cerebral palsy. *Gait and Clinical Movement Analysis Society Conference*, San Diego, 1998.

**Orendurff, M.S.**, Chung, J.S., Dorociak, R.D., Pierce, R.A. Predictors of stride length barefoot and with ankle foot orthoses for children with cerebral palsy. *Gait and Clinical Movement Analysis Society Conference*, San Diego, 1998.

**Orendurff, M.S.**, Pierce, R.A., Dorociak, R.D., Aiona, M.A. Stride length changes following surgical hamstring lengthenings in individuals with cerebral palsy. *American Society of Biomechanics Conference*, Clemson, SC. 1997.

**Orendurff, M.S.**, Pierce, R.A., Dorociak, R.D., Aiona, M.A. Kinematic and kinetic determinants of stride length in children with cerebral palsy. *American Academy of Developmental Medicine and Child Neurology Conference*, Portland, 1997.

**Orendurff, M.S.**, Smith, G.A. Initial and landing impact acceleration with mountain bike suspension forks. *American Society of Biomechanics Conference*, Stanford, CA. 1997.

**Orendurff, M.S.**, Aiona, M.A., Pierce, R.A., Dorociak, R.D., Smith, G.A. Kinematic and kinetic predictors of stride length. *American Society of Mechanical Engineers Bioengineering Conference*, Bend, OR. 1997.

**Orendurff, M.S.**, Smith, G.A. Impact acceleration while mountain biking with suspension forks. *American College of Sports Medicine Conference*, Indianapolis, 1996.

**Orendurff, M.S.**, Spens, A.K., Aiona, M.A., Pierce, R.A., Dorociak, R.D. (1996) The effect of femoral derotational osteotomies on kinematics of the lower extremities. *North American Gait and Clinical Movement Analysis Society Conference* Birmingham, 1996.

**Orendurff, M.S.**, Smith, G.A., Fujimoto, K. (1994) The effect of mountain bicycle suspension fork stiffness on impact characteristics. *American College of Sports Medicine Conference*, Seattle, 1994.

## **BOOKS**

---

**Orendurff, M.S.** Fifty Choice Single Tracks – A Guide to Mountain Bike Trails Around Portland. Dream Shade Designs, Portland, OR. 1990

**Orendurff, M.S.** Fifty Choice Single Tracks – A Guide to Mid-Valley Mountain Bike Trails. Dream Shade Designs, Portland, OR. 1992.

## **AWARDS**

---

2005 Mann Award for best clinical paper at the American Orthopaedic Foot and Ankle Society Conference, Boston, MA. (paper published in *Journal of Bone and Joint Surgery (Br.)* 2006, 88:65-8.) \$5000.

2004 Veterans Administration Service Excellence Award, Seattle Federal Executive Board

2003 Best Poster award (Ava Segal, first author) Gait and Clinical Movement Analysis Society Conference.

Nominated for Best Paper at Gait and Clinical Movement Analysis Society Conference 2000 and 2003.

## **PROFESSIONAL SERVICE**

---

- Editor, *Gait & Posture*
- Reviewer for *American Journal of Sports Medicine, Gait and Posture, Journal of Rehabilitation Research and Development, Foot and Ankle International, Journal of Applied Biomechanics, Annals of Biomedical Engineering, British Journal of Sport Medicine, Archives of Physical Medicine & Rehabilitation, Clinical Biomechanics, Sport Biomechanics, Preventative Medicine, Medical Engineering & Physics.*
- Invited Lecturer, International Society of Prosthetic and Orthotics Conference, Vancouver, 2007. *Clinical Gait Analysis: Understanding Kinematics and Kinetics and Practical Motion Analysis* with Mark Geil, PhD, and Nerrolyn Ford, PhD.
- Invited Lecturer, International Society of Prosthetic and Orthotics Conference, Hong Kong, 2004. *Clinical Gait Analysis and Outcomes Research in Amputee Gait.*
- Session Chair, International Society of Prosthetic and Orthotics Conference, Hong Kong, 2004.
- Session Chair, Gait and Clinical Movement Analysis Society, Denver, 2009
- Session Chair, Gait and Clinical Movement Analysis Society, Richmond, 2008
- Session Chair, Gait and Clinical Movement Analysis Society, Portland, 2005

## **COACHING EXPERIENCE**

---

Over 10 years of elite coaching experience. Baseball, soccer, mountain biking, but primarily volleyball: Coached three teams to the US Junior National Championship Match, 13 & under (1984), 15 & under (1981) and 17 & under (1985).

- Head Coach, Ichiban Volleyball Club, Long Beach, CA. Produced hundreds of student-athletes who won scholarships at dozens of collegiate volleyball programs nationwide. **Olympians Tee Williams and Keba Phipps are alumni;** 1983-1986.

- Assistant Coach for Loyola Marymount University, West Coast Conference Co-Champions; advanced to NCAA tournament, 1985.
- Assistant Coach for University of Laverne women's volleyball team. 3rd at NCAA Division III Tournament. 1984.
- Assistant Coach for the **USA Women's National Volleyball team**. 3rd at World Cup, 2nd at World Championships, 1982-83. Duties included training the team, running drills under head coach Arie Selinger and assistants Toshi Yoshida (1982-1983) and John Corbelli (1983). Conducted tryouts for the 1984 Women's Olympic Volleyball Team.
- Coached the Newport Volleyball Club 13 & under team to second place at the Junior National Championships 1982.
- Coached the Ichiban Volleyball Club 15 & under team to the **Junior National Championship Title** in 1981. 1980-1981.
- FIVB Stage II International Coaches Certificate. At the time, the youngest coach ever to graduate.
- Assistant Girl's Volleyball Coach, La Salle High School, Milwaukie, Oregon. Coached the junior varsity team, assistant coach for the varsity team. Planned a two year campaign with Head Coach Sharron Webster to win the AA Oregon State Girls Volleyball Championship, which was successful in 1981. 1980.
- Head Coach, Glendoveer Volleyball Club, Portland, Oregon. Tied for 13<sup>th</sup> at the 1980 Junior National Championships.

## **VOLUNTEER EXPERIENCE**

Over 20 years of trail citing, building and maintenance experience:

- Washing Trails Association, Beaver Lake Preserve, Sammamish, WA. 2.3 miles
- Southwest Portland Trails Commission, Red line trail, 15.6 miles. Route selection of major urban trail.
- McDonald Dunn Forest trail network, Corvallis, OR. 45+ miles.
- Columbia Gorge National Recreation Area, Larch Mountain Trail Network, 9.4 miles.

Member of the Board, Multnomah Playschool, one of the top 10 preschools in the country, Portland, Oregon, USA. 1996-1999.