# BIOGRAPHICAL SKETCH

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## EDUCATION

| INSTITUTION AND LOCATION | DEGREE | YEARS | FIELD OF STUDY |
|---|---|---|---|
| Temple University | B.S. | 1970-1974 | Physical Therapy |
| Hahnemann University | M.S. | 1983-1989 | Pediatric Physical Therapy |
| Drexel University | Ph.D. | 1996-2003 | Rehabilitation Sciences |

## A. Personal Statement

My overarching research goal is to study activity and participation for children with cerebral palsy with a concentration on the biomechanics of physical activities such as walking and running. My background and dissertation research have been on gait analysis and foot biomechanics in children with and without cerebral palsy. More recently, I was an investigator on a large multicenter study of the determinants of activity and participation in children and youth with cerebral palsy. I merged that experience and my previous work in movement biomechanics resulting in a 3-year funded study on the biomechanics of running in children with cerebral palsy, which recently ended. The biomechanical data generated by this study will help us to begin to answer questions as to how children with cerebral palsy run and what characteristics may be present that could potential cause stress and/or injury to the musculoskeletal system over time.
To date, his work has generated 2 doctoral dissertations, 2 DPT final projects and several national peer reviewed presentations. Preparation of manuscripts is in process.
Work in this area is projected to continue with a new grant proposal to determine these factors in a more ecologically, community based project.

## B. Positions and Honors

**Professional and Research Positions:**

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| 1991-Present | Faculty member, currently Associate Professor, Programs in Physical Therapy and Rehabilitation Sciences, Drexel University, Philadelphia, PA (on July 1, 2002 MCP Hahnemann University merged into Drexel University) |
| 2003-2006 | Director, Doctor of Physical Therapy Program, Drexel University |
| 2003-Present | Scientific Staff Member, Shriners Hospitals for Children, Philadelphia. |
| 2005-present | Member, Board of Directors, United Cerebral Palsy Association of Philadelphia & Vicinity |
| 2010-present | Co Chair Special Needs Committee, Jewish Family & Children's Service of Southern New Jersey |

**Selected Professional Activities:**

*Editorial Board Member:* Physical & Occupational Therapy in Pediatrics
*Manuscript reviewer:* Pediatric Physical Therapy, Developmental Medicine and Child Neurology, Archives of Physical Medicine and Rehabilitation, Pediatrics, Clinical Biomechanics
*Associate Editor:* Campbell, S.K. (Ed.), Vander Linden D.W., Palisano, R.J. (Assoc. Eds.) (2006). Physical Therapy for Children, Edition 3. Philadelphia: WB Saunders (4th edition in preparation).

**Honors:**

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|---|---|
| 2010 | Anniversary Award, Section on Pediatrics, American Physical Therapy Association |
| 1996 | Awarded membership in the Alpha Eta Society, Hahnemann University Chapter |
| 1990 | Finalist in the American Physical Therapy Association Section on Pediatrics Thesis Award |

## C. Selected Peer-Reviewed Publications

1. Solomon, M., **Orlin, M**., Morrissey, K., Cockerill, M. (1996). Motor performance of infants born prematurely: A comparison at age six months of those exposed and not exposed to cocaine. *Pediatric Physical Therapy, 8*, 80-86. (senior author).
2. **Orlin, MN**, Effgen, SK, Handler, SD. (1997). Effect of otitis media with effusion on gross motor skill ability in preschool-aged children: Preliminary findings. *Pediatrics, 99(3),* 399-409.
3. **Orlin, MN** & McPoil, TC (2000). Update: plantar pressure assessment. *Physical Therapy, 80, (4),* 399-409.
4. Lowes, LP, Westcott, SL, Palisano, RJ, Effgen, SK & **Orlin, MN.** (2004). Muscle force and range of motion as predictors of standing balance in children with cerebral palsy. *Physical & Occupational Therapy in Pediatrics, 24.* Nos 1/2.
5. Pierce, S, Laughton, CA, Smith, BT, **Orlin, MN**, Johnston, TE. & McCarthy, JJ. (2004). Direct effect of percutaneous electrical stimulation during gait in two children with hemiplegic cerebral palsy. A Report of 2 cases. *Archives in Physical Medicine and Rehabilitation, 85,* 339-343.
6. Pierce, SR, **Orlin, MN**, Lauer, RT, Johnston, TE, Smith, BT, McCarthy JJ. (2004). Comparison of percutaneous and surface functional electrical stimulation during gait in a child with hemiplegic cerebral palsy. *American Journal of Physical Medicine and Rehabilitation, 83(10),* 798-805.
7. Lauer RT, Stackhouse C, Shewokis PA, Smith BT, **Orlin** M, McCarthy JJ. (2005). Assessment of wavelet analysis of gait in children with typical development and cerebral palsy. *Journal of Biomechanics. 38(6),* 1351-1357.
8. Chiarello, LA., O'Neil, M, Dichter, C, Westcott, S, **Orlin, M**, Marchese, V, Tieman, B, Rose, U. (2005), Exploring Physical Therapy Clinical Decision Making for Children with Spastic Diplegia. *Pediatric Physical Therapy. 17(1),* 46-54.
9. Dayanidhi S, **Orlin M**. Kozin S. Duff S, Karduna A. (2005). Scapular kinematics during humeral elevation in adults and children. *Clinical Biomechanics. 20(6):*600-606.
10. **Orlin MN**, Pierce SR, Laughton Stackhouse C, Smith BT, Johnston TE, Shewokis PA, McCarthy JJ. (2005). The immediate effect of percutaneous intramuscular stimulation during gait in children with cerebral palsy: a feasibility study. *Developmental Medicine and Child Neurology, 47,* 684-690.
11. Pierce SR, Lauer RT, Shewokis PA, Rubertone JA, **Orlin MN**. (2006). Test retest reliability of isokinetic dynamometry for the assessment of spasticity of the knee flexors and knee extensors in children with cerebral palsy. *Archives of Physical Medicine and Rehabilitation, 87,* 697-702.
12. Oladeji, OB. Stackhouse, C, Gracely E.J. **Orlin MN**. (2008). Comparison of two-step and midgait methods of plantar pressure measurement in children. *Journal of the American Podiatric Medical Association, 98 (4),* 268-277. (senior author).
13. Palisano RJ, Kang LJ, Chiarello LA, **Orlin M**, Oeffinger D, Maggs J. (2009). Social and Community Participation of Children and Youth with Cerebral Palsy is Associated with Age and Gross Motor Classification. *Physical Therapy, 89(12),* 1-11.
14. **Orlin M**, Palisano RJ, Chiarello L, Kang LJ, Polanky M, Almasri N, Maggs J. (2010). Participation in Home, Extracurricular, and Community Activities among Children and Youth with Cerebral Palsy. *Developmental Medicine and Child Neurology*, 52: 160-166.
15. Palisano RJ, Almasri N, Chiarello L, **Orlin M**, Bagley A, Maggs J. (2010. Family Needs of Parents of Children and Youth with Cerebral Palsy. *Child: Care, Health & Development, 36 (1),* 85–92.
16. Palisano RJ, Chiarello LA, **Orlin M**, Oeffinger D, Polansky M, Maggs J, Bagley A, Gorton G, Activity and Participation Research Group. Determinants of Intensity of Participation in Leisure and Recreational Activities by Children with Cerebral Palsy. *Developmental Medicine and Child Neurology. Oct 21, 2010 (epub ahead of print)*
17. Chiarello LA, Palisano RJ, Maggs J, **Orlin M**, Almasri N, Kang L, Chang H. Family Priorities for Activity and Participation of Children with Cerebral Palsy. *Physical Therapy, 90 (9),* 1-10.
18. Kang L, Palisano R, **Orlin M**, Chiarello L, King G, Polanky M. Determinants of Social Participation with Friends and Other Non-Family Members for Youth with Cerebral Palsy. *Physical Therapy, 89 (12),* 1304-1314.
19. Chang H, Chiarello L, Palisano R, **Orlin M**, Begnoche DM, Ann M. Activity and participation of young children with cerebral palsy. *Developmental Medicine and Child Neurology,* 52 (suppl 5): 18, 2010. (abstract)
20. Laibsirinon S. **Orlin MN**. Leg stiffness in children with cerebral palsy. *Pediatric Physical Therapy*, 22(1): 123, 2010. (abstract)

21. **Orlin MN**, Laibsirinon S., Davis IS. Ground reaction forces and kinetics of running in children with cerebral palsy compared to children with typical development. *Pediatric Physical Therapy*, 22(1): 100, 2010. (abstract)
22. Palisano R, **Orlin M**, Chiarello LA, Maggs J, Oeffinger D, Gorton G, Bagley A. Determinants of leisure and recreational participation in youth with cerebral palsy. *Pediatric Physical Therapy*, 22(1): 134, 2010. (abstract)

## C. Research Support.

### Ongoing Research Support

Orlin, MN (PI) 1/1/10 – 12/31/11
Agency: Pediatric Section of the American Physical Therapy Association
Running Initiation in Children with Cerebral Palsy
Goal: To fund student dissertation that will describe and validate a model of running initiation in children with and without cerebral palsy.
Role: Primary investigator, doctoral research

### Completed Research Support

Orlin, MN (PI) 7/1/07 – 12/31/10
Agency: Cerebral Palsy International Research Foundation.
Biomechanics of Running in Cerebral Palsy
Goal: Examine biomechanics of running children with cerebral palsy compared to children without cerebral palsy and compared to running. To describe the running activities participated in by children with cerebral palsy.
Role: Primary Investigator

Palisano, R (PI)
Agency: Shriners Hospitals Research Foundation 2003-2006
Children's Activity and Participation Study
Goal: Identify the determinants of intensity of activity and participation for children and youth with cerebral palsy
Role: Co-investigator