

Samuel C. K. Lee, Ph.D., P.T.

My research accomplishments for 2003 and 2004 include securing grants, and publishing and presenting work of my collaborators and myself. In addition to the grants, journal articles, abstracts and awards listed below, 6 platform presentations and 9 poster presentations of our work were presented at national and international conferences over the past 2 years.

Grants:

- 2004-2009 National Institutes of Health. NICHD: R01 HD043859: Strength Training Using NMES for Children with CP. Principal Investigator. \$1,698,750 (5 years direct and indirect).
- 2004-2006 United Cerebral Palsy Foundation. Trabecular Microarchitecture and Geometric Structure of Bone in Children with Cerebral Palsy, co-investigator, \$99,882 (2 years direct and indirect).
- 2004- 2007 Shriners Hospitals for Children Grant #8530: Strength Training Using Electrical Stimulation for Children with Cerebral Palsy, Principal Investigator, \$362,211 (3 years direct and indirect).

Journal Articles:

- Stackhouse SK, Binder-Macleod SA, Lee SCK. Voluntary Muscle Activation, Contractile, and Fatigue Properties in Children With and Without Cerebral Palsy. *December 2004, in Press, Muscle & Nerve.*
- Scott WB, Lee SCK, Johnston TE, Binder-Macleod SA. Switching Stimulation Patterns Improves Performance of Paralyzed Human Quadriceps Muscle. *December 2004, in press, Muscle & Nerve.*
- Ding J, Lee SCK, Johnston TE, Wexler AS, Scott WB, Binder-Macleod SA: A mathematical model that predicts isometric muscle forces for individuals with spinal cord injuries. *December 2004, In press, Muscle & Nerve.*
- Scott WB, Lee SCK, Johnston TE, Binkley J, Binder-Macleod SA. Contractile Properties and the Force-Frequency Relationship of the Paralyzed Human Quadriceps Muscle. *Submitted to Physical Therapy, October 2004.*

Abstracts:

- Lee SCK, Stackhouse SK, Stackhouse CA, Schaefer M, McCarthy JJ, Smith BT. "Neuromuscular electrical stimulation and volitional strength training on in children with cerebral palsy: a preliminary study". *Proceedings of the 9th Annual International Functional Electrical Stimulation Society Conference, Bournemouth, England, September 6-9, 2004,* p71-73.
- Stackhouse SK, Binder-Macleod SA, Mccarthy JJ, Lee SCK. "Neuromuscular Electrical Stimulation And Volitional Isometric Strength Training Of The Quadriceps Femoris And Triceps Surae In Children With Spastic Diplegic Cerebral Palsy: A Preliminary Study". *Dev Med Child Neurol Supplement No.99, 46:F4 p19-20, 2004.*
- Laughton-Stackhouse C, Lee SCK, Schaefer M, Stackhouse SK, Vishnevetsky D, McCarthy JJ, Smith B. The effects of electrical stimulation vs. volitional strength training on gait in children with cerebral palsy. Annual Meeting of the Gait Clinical Movement Analysis Society, Lexington, KY, April 21-24, 2004.
- Lee SCK, Stackhouse SK, Ronan TA, Parker KW, McCarthy JJ, Binder-Macleod SA, Smith BT. Preliminary results of percutaneous neuromuscular electrical stimulation for strength training in children with cerebral palsy. *Proceedings of the 8th Annual Conference of the International Functional Electrical Stimulation Society, Queensland, Australia, July 1-5, 2003.*

Awards:

- Nominated for the 2005 Gayle G. Arnold Award for Excellence in the Care of Children with Cerebral Palsy for the paper entitled: "Neuromuscular Electrical Stimulation and Volitional Isometric Strength Training of the Quadriceps Femoris and Triceps Surae in Children with Spastic Diplegic CP presented at the 58th Annual Meeting of the American Academy for Cerebral Palsy and Developmental Medicine, Los Angeles, CA, September 29 – October 2, 2004.
- Mentored Drexel University Senior Design Project: Bohmik M, Ginder M, Kleinberg M, Greising J, Lind D, Lee SCK. "Instrumented bicycle pedals for use in a functional electrical stimulation study for children with cerebral palsy." Electrical and Computer Engineering Department, Drexel University, 2003-2004 Academic Year. Research Day, March 4th, 2004. Awarded 1st place project in the Electrical and Computer Engineering Department. Awarded 3rd place project (\$500) in the overall Drexel Engineering Department competition and a private industry award (Cisco Systems \$500).
- "Best Poster" for the poster "The effects of electrical stimulation vs. volitional strength training on gait in children with cerebral palsy." Gait and Clinical Motion Analysis Society Annual Meeting, Lexington, KY, April 2004.