Engineering Neuroscience & Health

Department of Biomedical Engineering Division of Biokinesiology and Physical Therapy

USC UNIVERSITY OF SOUTHERN CALIFORNIA

ENH SEMINAR SERIES

Presents:

Dr. Andrew Gordon

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Monday

April 20, 2009

4:00 p.m.

Refreshments will be served 3—4 pm

"What do two hands know that one does not? Bimanual training in children with cerebral palsy"

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Children with hemiplegic cerebral palsy (CP) have impairments in involved upper extremity function that often affect their independence and quality of life. Until recently, evidence-based treatments of impaired hand function have been largely lacking. Recent studies suggest that children with hemiplegia may benefit from intensive practice. One recent treatment approach providing intensive unimanual practice, constraint-induced movement therapy (CIMT), has shown promise for the improvement of unimanual hand function both in adults and children with unilateral impairments. Here we present evidence that CIMT may indeed be beneficial for some children with hemiplegia. We also suggest, however, that there are a number of conceptual problems and limitations associated with CIMT, with the most important being that CIMT is a unimanual intervention, and increased functional independence in the child's environment requires use of *both hands in cooperation*. Thus we followup with a behavioral and neurophysiological rationale for intensive bimanual therapy in children with hemiplegia. Our findings suggest that restraining the more affected upper extremity is not required to elicit changes in involved upper extremity function. Finally, we present data on specificity of training and suggest future avenues of research.

Dr. Gordon is a Professor of Movement Science and Neuroscience & Education at Teachers College, Columbia University. He is the Project Director and has been intimately involved in studies of hand motor control in healthy individuals and cerebral palsy since 1990. and has more than 90 publications to date. He has focused the knowledge gained from these studies into modifying and testing CI therapy for use in children with hemiplegic CP since 1998, and has been the Principal Investigator on a CI therapy trial funded by the National Institutes of Health.

Locations:

Seminar is simultaneously presented

HSC: CHP 147— LIVE

Center for the Health Professional

HSC Campus Map/Directions:
http://www.usc.edu/about/visit/hsc/

UPC: HNB 100 – Video Conference

Hedco Neurosciences Building

UPC Campus Map/Directions:
http://www.usc.edu/about/visit/upc/

Organized by Professor Francisco Valero-Cuevas http://bme.usc.edu/valero/

Web Cast

http://capture.usc.edu/college/Catalog/?cid=af180d48-ceff-42b9-a35c-eb199daed320

Information about all seminars can be found at
http://www-clmc.usc.edu/~heiko/ENH