

## ***CURRICULUM VITAE***

NAME: Susan Holly Curwin Brown

PLACE OF BIRTH: Windsor, Nova Scotia, Canada

### ACADEMIC DEGREES:

1972-1976      Acadia University, Wolfville, Nova Scotia  
B.Sc. Biology (Honours)

1977-1979      University of Western Ontario, London, Ontario, Canada  
M.Sc. Physiology  
Thesis: *Movement-Related EMG Activity in Humans*

1981-1986      University of Western Ontario, London, Ontario, Canada  
Ph.D. Physiology  
Thesis: *Control of Movement Initiation in Humans*

### EMPLOYMENT:

1979-1981      Research Assistant, Dept. of Physiology, Univ. Western Ontario  
1986-1987      Research Associate, Dept. of Physiology, Univ. Western Ontario  
1987-1989      Post-doctoral Research Fellow, Dept. of Neurology, Univ. Duesseldorf, Germany  
1989-1990      Research Associate, Dept. of Neurology, Univ. Western Ontario  
1991-1992      Research Associate, Faculty of Applied Health Sciences, Univ. Western Ontario  
1992-1998      Assistant Professor, Division of Kinesiology, Univ. Michigan  
1998-            Associate Professor, Division of Kinesiology, Univ. Michigan  
1999-2000      Associate Director for Research, Division of Kinesiology, Univ. Michigan  
2000-            Associate Dean for Research, Division of Kinesiology, Univ. Michigan

### RELATED CLINICAL EXPERIENCE:

1990-1991      Combined courses, field work in Physical Therapy, Univ. Western Ontario

### HONORS AND AWARDS (post graduate):

1987-1989      Alexander von Humboldt Fellowship, Germany  
1991-1992      Ontario Ministry of Health Fellowship  
1996            Teaching Excellence Award, Division of Kinesiology, University of Michigan  
1997            Career Development Award for Women Faculty, University of Michigan  
Teaching Excellence Award, Division of Kinesiology, University of Michigan  
2001            University of Michigan Thurnau Professorship for Excellence in Undergraduate Teaching  
2002            St. Thomas University Visiting Chair Professorship in Gerontology (Fredericton, New Brunswick, Canada)  
2004            UM Elizabeth Crosby ADVANCE Award

### PROFESSIONAL MEMBERSHIPS:

1978- present    Society for Neuroscience  
1998- present    International Movement Disorders Society  
1998- present    Gerontological Society of America

### SERVICE (RESEARCH):

1993-present Co-organizer - Center for Human Motor Research Seminar Series, Division of Kinesiology  
1993-1998 Founder - Kinesiology Day (annual one-day meeting to showcase multi-disciplinary activities within the Division of Kinesiology)  
1991- present Manuscript Reviewer for: Brain, Brain Research, Experimental Brain Research, Journal of Motor Behavior, Journal of Neurophysiology  
2000-present Grant Reviewer for Canada Foundation for Innovation  
Medical Research Council of Canada

### SERVICE (UNIVERSITY COMMITTEES)

1999 – present Research Associate Deans Group, University of Michigan  
2001 – present Provost’s Council on Student Honors  
Senate Assembly Tenure Committee  
University of Michigan Initiative on Disability Studies Steering Committee  
2002- present University of Michigan Shipman Scholars Society faculty advisor  
2002 University of Michigan President’s Council on Undergraduate Education  
2003 – 2004 CRLT Faculty Advisory Committee  
2004-2005 Provost’s Student Honors Sub-Committee for Rhodes, Mitchell, Marshall nominees

### SERVICE (KINESIOLOGY):

1993-1996 Kinesiology Day Committee (chair, committee member)  
1994-1995 Kinesiology K-Quality Committee - Ph.D. review (member)  
Martin Luther King Day panel discussion, Kinesiology (co-moderator)  
Planning Committee - Joint Ph.D. Program between Dept. of Physical Therapy and Division of Kinesiology (Kinesiology representative)  
1994-1998 Graduate Committee (member)  
1996-1997 Learning Environment Advisory Committee (member)  
Faculty Search Committee (member)  
1996-1998 Executive Committee (member)  
1997-1998 UM Provost Grant Governing Team (member)  
Kinesiology Dean Search Committee (member)  
Awards Committee (member)  
1998-1999 Chair, Movement Science Curricular Unit  
Faculty Search Committee (member)  
Systems Administrator Search Committee (member)  
1999-2000 Chair, Graduate Committee  
Coordinator, Kinesiology Minority Undergraduate Student Initiative  
1999-present Associate Dean for Research  
2000-2002 Chair, Senior Faculty Search Committee

### SERVICE (COMMUNITY) (1992-):

1993-1994 Washtenaw County Intermediate School Board - Females in Technology Program  
Site Visit Coordinator and Host  
1994 Angell School, Ann Arbor - Grade 4 Laboratory Site Visit  
1995 Washtenaw County Parkinson Support Group - Board of Directors presentation concerning Parkinson’s Disease research  
1997 Coordinator for summer presentation series to Parkinson support group  
1997-present Technical Expert - Technical Advisory Service for Attorneys  
1997-present Speaker - Parkinson Support Groups in southeastern Michigan  
2000-2002 Ann Arbor Exercise and Mobility Program for Individuals with Parkinson’s Disease –coordinator  
2004 - Coordinator for service learning wellness project – Ann Arbor Center for Independent Living and Division Kinesiology

TEACHING:

- 1993-1994     Movement Science (MVS) 421 (3 cr) - *Disorders of Voluntary Movement* (developed as a new upper level elective course) (F 93) (15 students)  
MVS 320 (4 cr) - *Motor Control* (extensively revised and expanded with an emphasis on neurophysiological mechanisms underlying human movement- one of three required core courses in the MVS program) (W94) (45 students)  
MVS 488 (2-3 cr) *Independent Laboratory Study in Motor Control* (F/W 93/94) (2 students/semester)
- 1994-1995     MVS 305 (3 cr) - *Motor Control and Biomechanics of Human Aging* (developed as new course with Dr. M. Gross) (F 94) (28 students)  
MVS 320 (F94, W95) (55 students)  
MVS 421 (W95) (47 students)  
MVS 488 (F/W 94/95) (3 students/semester)  
KIN 610 *Topics in Kinesiology (guest lecturer)*
- 1995-1996     MVS 110 (3 cr) - *Physiological and Psychological Bases of Human Movement* (extensively revised and re-structured for team teaching (motor control, biomechanics, exercise physiology, responsible for complete revision of motor control module and coordinating new teaching materials for all three modules) (F95) (35 students)  
MVS 521 (3 cr) - *Visuomotor Coordination* (developed as a new course) (F95) (14 students)  
MVS 320 (W96) (53 students)  
MVS 305 (W96) (44 students)  
MVS 490 *Honors Undergraduate Thesis* (5 cr) (F/W 95/96) (2 students/semester)  
MVS 429 (3 cr) *Laboratory Experience and Seminar in Motor Control - MVS seniors* (F/W 96/97) (3 students/semester)  
MVS 488 (F/W 95/96) (2 students/semester)
- 1996-1997     MVS 110 (F96) (42 students)  
MVS 421 (F96) (39 students)  
MVS 490 *Honors thesis* (F/W 96/97) (2 students/semester)  
MVS 429 (F/W 96/97) (4 students/semester)  
MVS 488 (F/W 96/97) (2 students/semester)  
mentor and supervisor- UM Summer Research Opportunity Program grant awarded to E. Reed (full time - spring/summer)
- 1997-1998     MVS 320 (F97) (45 students)  
MVS 421 (W98) (40 students)  
MVS 490 *Honors thesis* (F/W 97/98) (2 students/semester)  
MVS 429 (F/W 97/98) (3 students/semester)  
MVS 305 (guest lecturer)  
KIN 610 (guest lecturer)  
IOE 591 (guest lecturer)
- 1998-1999     MVS 320 (F98) (50 students)  
MVS 421 (W99) (42 students)  
KIN 520 (W99) (7 students)  
MVS 490 *Honors thesis* (F/W 98/99) (3 students/semester)  
MVS 429 (F/W 98/99) (3 students/semester)  
MVS 488 (F/W 98/99) (2 students/semester)
- 1999-2000     MVS 320 (F99) (46 students)  
MVS 490 *Honors thesis* (F/W 99/00) (2 students/semester)

	<u>MVS 429 (F/W 99/00)</u> (3 students/semester)
	<u>MVS 320 (W00)</u> (46 students)
	<u>MVS 421 (W00)</u> (35 students)
2000-2001	<u>MVS 320 (F00)</u> (33 students)
	<u>MVS 429 (F00)</u> (12 students)
	<u>MVS 490</u> Honors thesis (F/W 00-01) (3 students/semester)
	<u>KIN 520 (F00)</u> (8 students)
	<u>MVS 421 (W01)</u> (38 students)
2001-2002	<u>MVS 320 (F01)</u> (40 students)
	<u>MVS 429 (F01)</u> (12 students)
	<u>MVS 320 (W02)</u> (40 students)
	<u>MVS 421 (W02)</u> (19 students)
2002-2003	<u>Gerontol 3673 (F02)</u> (28 students) (St Thomas University)
	<u>MVS 421 (W03)</u> (38 students)
2003-2004	<u>MVS 320 (F03)</u> (36 students)
	<u>MVS 421 (W04)</u> (48 students)
2004-2005	MVS 320 (F04) (39 students)
	MVS 421 (W05) (30 students)

#### GRADUATE STUDENT TRAINING:

##### Primary Advisor:

##### Univ. Duesseldorf:

1989-1994	M. Mertens, (Doctoral co-advisor), Dept. of Neurology, Univ. Duesseldorf <i>Disturbances in movement trajectory due to cerebellar dysfunction</i>
	K. Kessler (Doctoral co-advisor), Dept. of Neurology, Univ. Duesseldorf <i>Eye-arm coordination in cerebellar patients.</i>

##### University of Western Ontario:

1991-1993	N. Virji-Babul (M.Sc. co-advisor), Program in Neuroscience, Univ. Western Ontario <i>Effects of gravitational loads on muscle activation patterns</i>
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##### Masters - University of Michigan:

1993-1994	J. Benjamin, Kinesiology, UM <i>Effects of sensory cueing on movement accuracy: gender differences</i>
1996-1998	E. Flansburg, Kinesiology, UM <i>Sensory control of bimanual coordination</i>
1997- 1999	Kuang-You Cheng, Kinesiology, UM <i>Influence of tonic neck reflexes on upper limb kinematics and EMG patterns during rhythmic voluntary movements</i>
2000-2001	Amy Campbell, Kinesiology, UM <i>Motor coordination in high functioning Autism</i>
2001-	Beth Wiggert, Kinesiology, UM (part-time)

Doctoral - UM

1998	Donna Fry-Welch (PhD co-chair), Kinesiology, UM <i>Training Effects on Proprioceptive Acuity</i>
1995-present	G. Conti, Kinesiology, UM (chair) <i>Effects of aging on bimanual force control</i>
1996 - 2003	T. Liberzon, Kinesiology, UM (chair) <i>Role of auditory cueing in the performance of rhythmic arm movements</i>
1997 -2002	Cathy Larson, Kinesiology, UM (chair) <i>Arm reaching clearance tasks in patients with essential tremor</i>
1998-2002	Cengiz Yakut, Kinesiology, UM (co-chair)
2000-	Min Huang, Kinesiology, UM (chair) <i>Limb-posture coordination in elderly individuals</i>
2002-	Dann Goble (chair)
2002-2003	Diane Adamo (co-chair)
2004	Diane Adamo (chair)

Preliminary examination committee member:

1994 - present	T. Liberzon, C. Larson, H. Chai, K. Hinderer, S. Glickman, G. Conti, J. Streepey, S. McKay, K. Gordon
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Dissertation committee member:

1993-1998	D. Fry-Welch (Kinesiology, UM) (Training Effects on Proprioceptive Acuity)
1995-1999	H.-M. Chai (Kinesiology, UM) (Dynamic Balance Control in Young and Elderly Adults)
1996-1999	K. Monroe (Industrial and Operations Engineering, UM) (Evaluation of Factors Influencing Static Work Postures: Effects of Age and Gender)
1999-2003	J. Streepey (Kinesiology, UM) (Dynamic Balance Control in Children)
2001-	H. Kim (Industrial and Operations Engineering, UM) (Head and Arm Coordination During Reaching Movements)
2004-	J. Czibek (Kinesiology, UM)

HOST/MENTOR - VISITING RESEARCH SCHOLARS:

1993	M.H. Thaut, Ph.D., Colorado State Univ. H. Hefter, M.D. Dept. of Neurology, Univ. Duesseldorf
1994	K. Kessler, M.D., Dept. of Neurology. Univ. Duesseldorf
1993 - 1995	E. Ramos, M.D., Dept. of Physical Medicine and Rehabilitation, Univ. Puerto Rico, NIH Rehabilitation Research Fellow (in conjunction with Physical Medicine and Rehabilitation, Univ. Michigan)
1997, 1998	E. Ramos, M.D. Dept. of Physical Medicine and Rehabilitation, Univ. Puerto Rico
1998-1999	R. Ayangar, M.D. Dept. of Physical Medicine and Rehabilitation, Univ. Michigan (in conjunction with Physical Medicine and Rehabilitation, Univ. Michigan)
2002	M. Fernandez del Olmo, PhD Dept. of Medicine, University of Corunna, Spain

RESEARCH GRANTS (funded):

- 1992-1994 Univ. Western Ontario Academic Development Fund, \$50,000  
*Development of a Portable Unit for Testing of Movement Function*  
(co-investigator)
- 1993 OVPR small projects grant, Univ. Michigan, \$1,200  
Support for Dr. M.Thaut (visiting scholar)
- 1993-1994 Rackham Faculty Grant, Univ. Michigan, \$14,700  
*Auditory Facilitation of Upper Limb Movements*  
(principal investigator)
- 1995 National Parkinson Foundation \$2,200 (3 mon)  
*Role of Auditory Cueing in Assisting Movement In Parkinson's Disease*  
Summer Graduate Research Fellowship  
(sponsor for T. Liberzon, doctoral student in Kinesiology)
- 1995 Washtenaw County Parkinson Support Group \$1,200  
*Role of Auditory Cueing in Assisting Movement in Parkinson's Disease*  
Graduate Student Support
- 1996 National Institute of Aging FIRST Award \$498,477  
*Facilitation of Motor Function Through Sensory Cueing*  
(principal investigator) (09/96-08/01)
- 1996 National Parkinson Foundation \$2,200 (3 mon)  
*Role of Auditory Cueing in Facilitating Limb-Posture Coordination in Parkinson's Disease*  
Summer Graduate Research Fellowship  
(sponsor for T. Liberzon, doctoral student) 05/96
- 1996 National Institute for Disability and Rehabilitation Research \$348,000  
*Treatment of Upper Extremity Spasticity with Botulinum Toxin: Motor Control Evaluation to Determine Efficacy*  
(co-PI; PI- Dr. E. Hurvitz, Dept. of Physical Medicine and Rehabilitation  
(09/96-08/99)
- 1996 National Institutes of Health \$1,213,420  
University of Michigan Medical Rehabilitation Research Training Program, Dept. of Physical Medicine and Rehabilitation  
(participating investigator) 07/96 - 06/01
- 1996 RCMC Clinical Research Center Pilot Project - Univ. Puerto Rico \$20,000 (1 yr)  
*Quantitative Assessment of Upper Limb Function in Children with Myelodysplasia*  
(co-principal investigator with Dr. Edwardo Ramos, Univ. of Puerto Rico)  
12/96
- 1996 Office of the Vice - President for Research and the Rackham Graduate School \$1,000  
Computer Applications in Rehabilitation Workshop, London, Ontario 09/96
- 1997 Rackham Spring/Summer Research Grant \$2,000  
*Bilateral Force Control in the Elderly*  
(support for G. Conti, doctoral student) 04/97

- 1999 Career Development Fund for Women Faculty \$5,000  
University of Michigan 05/99
- 2000 National Center for Medical Rehabilitation Research – Centers of Excellence Programs  
Restoration of Function in Neurologic Impairment – A Research Development Program  
network scientist participating member (P.I. Dr. Z. Rymer, Rehabilitation Institute of Chicago)
- National Institute for Disability and Rehabilitation Research \$449,816 (3 yr)  
*Repetitive Intensive Training Exercise: Effect on Upper Extremity Motor Function in Spasticity*  
(co-PI, PI - Dr. E. Hurvitz, Dept. of Physical Medicine and Rehabilitation)  
(09/00-08/03)
- Michigan Parkinson’s Foundation \$1,500  
*Development of an exercise intervention program for Parkinson’s Disease*
- University of Michigan Summer Research Undergraduate Opportunity (SROP) Biomedical F  
Fellowship (H. Feldhusen, Kinesiology)
- 2001 UM Medical Rehabilitation Research Training Program (NIH T32) \$1,730,630 (5yr)  
*Bridging Science into Service*  
Assessment of Motor Performance Core Co-Director
- UM SROP Biomedical Fellowship (M.Bui, LSA) \$3500
- 2002 UM South Africa Initiatives Office \$5,000  
*Effects of Malnutrition on Motor Performance in Preadolescence and Adolescence in Rural  
South Africa*
- UM Graduate School \$5,000  
*Effects of Malnutrition on Motor Performance in South African Children*
- UM Mott Children’s Hospital \$28,000 (co- PI; PI - E. Hurvitz, Dept of PMR)  
*Bilateral Coordination in Children with Unilateral Upper Limb Impairment*
- Preparation of Leadership Personnel Training Grant, U.S. Dept of Education \$793,000(4 yr)  
Core faculty member providing pediatric research opportunities - funding for trainees only
- 2003 UM SROP Biomedical Fellowship \$3500 (S. Huang, Engineering)
- UM Office of the Vice President for Research \$5780.00  
*Auditory Facilitation of Limb-Posture Coordination in Healthy Aging and Parkinson’s Disease*
- 2004 UM Elizabeth Crosby Advance Award \$20,000  
*Limb-Posture Control and Proprioceptive Function in the Elderly*
- National Institutes of Health R03 \$150,000  
*Age-related Changes in Upper Limb Proprioceptive Acuity*  
(principal investigator)  
9.2 percentile (pending Council approval 05/05)
- 2005 National Institute on Disability Rehabilitation and Research \$450,000

*Sensorimotor Training and Assessment in Adults with Hemiplegic Cerebral Palsy: The ULTrA Program*

(principal investigator) under review

UM SROP Biomedical Fellowship \$3500 (C. Waechter, Kinesiology)

INVITED LECTURES:

- 1987: Modification of the Initial Agonist Burst by Peripheral Feedback. Neurol Klinik, Essen, Germany, May 25, 1987.
- Role of Phasic EMG Activity in the Control of Movement Trajectory. Institute for Physical Biology, Univ. Duesseldorf, Germany, June 25, 1987.
- 1988: Control of Movement Trajectory in the Elderly. Nijmegen Brain and Behaviour Colloquium, Univ. Nijmegen, Netherlands, June 20, 1988.
- Role of the Cerebellum in the Control of Movement Trajectory. Dept. of Psychology, Univ. Cambridge, England, July 18, 1988.
- 1989: Phasic EMG Patterns in Human Arm Movements during Phase Plane Tracking. Physiology Institute, Univ. Duesseldorf, Germany, June 28, 1989.
- 1990: Changes in Movement Strategy Due to Mild Cerebellar Dysfunction. Chicago Rehabilitation Institute, Chicago, January 17, 1990.
- A New Hypothesis for the Function of Movement-Related Phasic Muscle Activity. Division of Kinesiology, Univ. Michigan, Ann Arbor, April 25, 1990.
- 1991: Current Concepts in the Control of Human Arm Movements. Dept. of Physical Therapy, Univ. Western Ontario, London, Canada, January 22, 1991.
- Control of Visually Guided Arm Movements in the Young and Elderly. Dept. of Clin. Neurol Sci., Univ. Western Ontario, London, Canada, May 10, 1991.
- 1992: Scaling of Movement Kinematics in the Elderly. NATO Advanced Workshop: Sensorimotor Impairments in the Elderly. Bad Windsheim, Germany, Sept 12, 1992.
- 1993: Sensori-motor Function in Elderly Humans. International Society for Studies in Behavioural Development, Recife, Brazil, July 14, 1993.
- Current Issues in Human Motor Control. Dept. of Physical Medicine and Rehabilitation, Univ. Michigan, Ann Arbor, Sept 2, 1993.
- 1994: Control of Voluntary Arm Movements in the Elderly and Preliminary Findings in DAT Subjects. Washington Univ. School of Medicine, St. Louis, May 17, 1994.
- 1995: Control of Human Limb Movements. Dept. of Neurology, Univ. Duesseldorf, Duesseldorf, Germany, March 29, 1995.
- Oculomanual Coordination in Patients with Cerebellar Ataxia. Faculty of Applied Health Sciences, University of Western Ontario, May 8, 1995

Oculomanual Coordination in Patients with Lesions of the Cerebellum and Parietal Cortex. Human Motor Control Satellite Symposium of the Fourth IBRO World Congress of Neuroscience, Nara, Japan, July 8, 1995

- 1997: Kinematic Analysis in Movement Disorders. Dept. of Physical Medicine and Sports Science, Univ. Puerto Rico May 16, 1997
- 1999: Application of Motor Control Principles in the Assessment of Upper Limb Movements: Implications for Rehabilitation. Dept. of Biomedical Engineering, Orthopaedic Research Seminar Series. Univ. Michigan June, 1999
- 2002: Sensory Facilitation of Movement in Parkinson's Disease. St. Joseph's Hospital, Dept of Geriatrics Grand Rounds, St. John, New Brunswick, Canada, October, 2002
- Physical Activity, Aging, and Parkinson's Disease: Training the Brain Through Movement Creamer Lecture, St. Thomas University, Fredericton, Canada, November, 2002
- Mobility Issues in Older Adults and Parkinson's Disease. New Brunswick Community College, Program in Social Services, St. John, Canada. November, 2002

#### INVITED WORKSHOP PRESENTATIONS:

- 1997: A New Look at the Upper Extremity: Qualitative and Quantitative Evaluation American Academy of Physical Medicine and Rehabilitation Physical Medicine Annual Assembly, Atlanta, Georgia
- 1997: Trends in Motor Control Research and their Application to Rehabilitation. Washtenaw County Occupational and Physical Therapy Group, (continuing medical education program)
- 1998: Stability and Instability in the Assessment of Upper Limb Movements. Dynamic Systems Theory: Research in Rehabilitation Workshop. American Congress of Rehabilitation Medicine, Seattle, Washington
- 2002: Role of Exercise in Parkinson's Disease. Turner Geriatrics Center, UM Hospital, May, 2002
- Role of Sensory Cueing and Exercise in Parkinson's Disease. Maritime Chapter of the National Parkinson's Disease Association, Fredericton, Canada. November, 2002

#### CONFERENCES/WORKSHOPS ATTENDED (1995-present):

- 1995- Society for Neuroscience Annual Meeting
- 1995: Linc Workshop, George Mason University, Fairfax, Virginia
- 1995 –1999 The Conference on High Speed Computing, Gleneden Beach, Oregon
- 1996: Linc Workshop, Faculty of Applied Health Sciences, University of Western Ontario, London, Ontario

#### RESEARCH PUBLICATIONS (refereed journals):

1. **Brown, S.H.C.**, Cooke, J.D. Amplitude-and instruction-dependent modulation of movement-related EMG activity in humans. J. Physiol. 316: 97-107, 1981a.
2. **Brown, S.H.**, Cooke, J.D. Compensation for force perturbation preceding voluntary human arm movements. Brain Res. 220: 350-355, 1981b.

3. **Brown, S.H.**, Cooke, J.D. Initial agonist burst duration depends on movement amplitude. *Exp. Brain Res.* 55: 523-527, 1984.
4. Cooke, J.D., **Brown, S.H.** Science and statistics in motor physiology. *J. Mot. Behav.* 17: 489-192, 1985.
5. Cooke, J.D., **Brown, S.H.**, Forget, R., Lamarre, Y. Initial agonist burst duration changes with movement amplitude in a deafferented patient. *Exp. Brain Res.* 60: 184-187, 1985.
6. **Brown, S.H.**, Cooke, J.D. Magnitude of the initial agonist burst is modified by perturbations preceding movement. *Brain Res.* 377: 311-322, 1986a.
7. **Brown, S.H.**, Cooke, J.D. Movement-related EMG activity compensates for position-dependent changes in limb properties. *J. Hum. Mov. Studies.* 12: 297-312, 1986b.
8. Cooke, J.D., **Brown, S.H.** Phase-plane tracking; a new method for shaping movements. *Behav. Brain Bull.* 16: 435-437, 1986.
9. Cooke, J.D., **Brown, S.H.**, Cunningham, D.A. Kinematics of arm movements in elderly humans. *Neurobiol. Aging.* 10: 150-165, 1989.
10. Darling, W.G., Cooke, J.D., **Brown, S.H.** Control of simple arm movements in elderly humans. *Neurobiol. Aging.* 10: 139-149, 1989.
11. **Brown, S.H.**, Cooke, J.D. Movement-related phasic muscle activation: I. Relations with temporal profile of movement. *J. Neurophysiol.* 63: 455-464, 1990.
12. **Brown, S.H.**, Hefter, H., Mertens, M., Freund, H.-J. Disturbances in movement trajectory due to cerebellar dysfunction. *J. Neurol. Neurosurg. Psychiat.* 53: 306-313, 1990.
13. Cooke, J.D., **Brown, S.H.** Movement-related phasic muscle activation: II. Generation and functional role of the "triphasic" pattern. *J. Neurophysiol.* 63: 465-472, 1990.
14. **Brown, S.H.**, Hefter, H., Cooke, J.D., Freund, H.-J. Preferential impairment of slow and fast alternating movements in patients with mild cerebellar ataxia. *J. Neurol. Neurosurg. Psychiat.* 56: 1038-1039, 1993.
15. **Brown, S.H.**, Kessler, K., Hefter, H., Cooke, J.D., Freund, H.-J. Role of the cerebellum in visuomotor coordination I. Delayed eye and arm initiation in patients with mild cerebellar ataxia. *Exp. Brain Res.* 94: 478-488, 1993.
16. Cooke, J.D., **Brown, S.H.** Movement-related phasic muscle activation: III. Control of the duration of phasic agonist activity. *Exp. Brain Res.* 99: 473-482, 1994.
17. Virji-Babul, N., Cooke, J.D., **Brown, S.H.** Effects of gravitational forces on single joint arm movements in humans. *Exp. Brain Res.* 99: 338-346, 1994.
18. Cooke, J.D., Hefter, H., **Brown, S.H.**, Toyka, K., Freund, H.-J. Kinematic and EMG analysis of motor dysfunction associated with Lambert-Eaton Syndrome. *Electromyogr. Clin. Neurophysiol.* 34: 87-93, 1994.
19. **Brown, S.H.** Kinematics of arm movements in the elderly. *in* *Advances in Psychology*, Teasdale, N. and Ferrandez, A.-M. (eds). Elsevier, pg. 27-52, 1996.
20. Hefter, H., **Brown, S.H.**, Cooke, J.D., Freund, H.-J. Basal ganglia and cerebellar impairment differentially affect the amplitude and time scaling during the performance of forearm step tracking

- movements. *Electromyogr. Clin. Neurophysiol.* 36: 1-8, 1996.
21. Thaut, M.H., **Brown, S.H.**, Benjamin, J., Cooke, J.D. Rhythmic facilitation of movement sequencing: effects on spatiotemporal control and sensory modality dependence. *MusicMedicine*, 2: 104-113, 1996.
  22. Thaut, M.H., **Brown, S.H.**, McIntosh, G., Rice, R. Effects of rhythmic auditory cueing on gait characteristics in Parkinson's patients. *J. Neurol. Neurosurg. Psychiat.* 36:47-54, 1996.
  23. Hefter, H., Cooke, J.D., **Brown, S.H.**, Weiss, P., Kuhlman, H., Freund, H.-J. Kinematic properties of upper limb movement trajectories. in *Instrumental Methods and Scoring in Diagnosis and Quantification of Extrapyrarnidal Disorders*. Pryzuntek, T., Korzin, Kraus (eds). Springer-Verlag, 1996.
  24. Ramos, E., Latash, M., Hurvitz, E., **Brown, S.H.** Assessment of reaching movements in children with ataxia using kinematic analysis techniques. *Arch. Phys. Med. Rehab.* 78: 491-496, 1997.
  25. Hurvitz, E.A., Flansburg, E.L., Conti, G.E., **Brown, S.H.** The use of motor control testing to evaluate response to Botulinum toxin injections in the upper extremity. *Arch Phys. Med. Rehab.* 79: 1177-, 1998.
  26. Hurvitz, E.A., Conti, G.E., Flansburg, E.L., **Brown, S.H.** Quantitative evaluation of upper limb function following Botulinum toxin injection: a case report. *Arch. Phys. Med. Rehab* 81: 1408-1415, 2000.
  27. Hurvitz, E.A., Conti, G.E., **Brown, S.H.** Changes in movement characteristics of the spastic upper following Botulinum toxin injection. *Arch Phys. Med. Rehab.* 84: 444-451, 2003.

#### MANUSCRIPTS UNDER REVIEW:

1. Conti, G.E., Alexander, N., **Brown, S.H.** Age-related changes in bilateral grasp force. *J. Gerontol.* (under review)
2. Goble, D.J., Lewis, C.A., Hurvitz, E., **Brown, S.H.** Effects of age and task complexity on upper limb proprioceptive acuity in children *Human Mov Sci.* (accepted with revisions)

#### MANUSCRIPTS IN PREPARATION:

1. Adamo, D.A., **Brown, S.H.** Upper limb proprioceptive acuity in the elderly (*J. Gerontology*)
2. **Brown, S.H.**, Lewitt, P., Samczyk, N.L. Effects of sensory cueing on stopping a sequential task in Parkinson's Disease. *Mov. Dis.* (under review)
3. **Brown, S.H.**, Hurvitz, E.A., Conti, G.E., Samczyk, N.L. Short term motor training leads to improvement in upper limb function in children with hemiplegic cerebral palsy (*Arch Phys Med Rehab*)
4. Goble, D.J., Hurvitz, E., **Brown, S.H.** Upper limb coordination in children with congenital brachial plexus (*Dev. Med. Child Neurol*)
5. Huang, M., **Brown, S.H.** Effects of sensory cueing on movement reversal times during rhythmic reaching movements in Parkinson's Disease (*Mov. Disorders*)
6. Huang, M., **Brown, S.H.** Limb-posture coordination during reaching from standing in elderly subjects (*J. Gerontol*)
7. Larson, C.L., **Brown, S.H.** Reaching kinematics in essential tremor (*Brain*)
8. Lewis, C.A., Goble, D.J., Samczyk, N.L., Hurvitz, E., **Brown, S.H.** Sensorimotor deficits associated with bilateral arm reaching movements in children with cerebral palsy (*Arch Phys Med Rehab*)
9. Liberzon-Shafir, T., **Brown, S.H.** Timing of rhythmic single and multi-joint arm movements (*J. Neurophysiol*)
10. Samczyk, N.L., **Brown, S.H.** Age- and cue-dependent related changes in modification of an ongoing rhythmic task. (*J. Gerontol*)
11. Goble, D.J., **Brown, S.H.** Asymmetries in upper limb proprioception during active and passive matching tasks (*Exp. Brain Res*).

## PUBLISHED ABSTRACTS:

1. Cooke, J.D., Brown, S.H. "Non-guided" limb movements in normal humans. *Proc. Can. Fed. Biol. Soc.* 21: 90, 1978.
2. Brown, S.H., Cooke, J.D. Modification of movement-related EMG activity by perturbations applied before onset of voluntary human arm movements. *Proc. Soc. Neurosci.* 5: 364, 1979.
3. Brown, S.H., Cooke, J.D. EMG responses to force perturbations preceding accurate arm movements in humans. *Proc. Soc. Neurosci.* 7: 155.7, 1981.
4. Brown, S.H., Cooke, J.D. Effects of movement amplitude on components of the initial agonist burst. *Proc. Soc. Neurosci.* 8: 212.8, 1982.
5. Brown, S.H., Cooke, J.D., Workman, K. Effects of elbow position on the initial agonist burst. *Proc. Soc. Neurosci.* 9: 1032, 1983.
6. Cooke, J.D., Brown, S.H. EMG activity and arm movement trajectories. *Proc. Soc. Neurosci.* 9: 1033, 1983.
7. Brown, S.H., Cooke, J.D. Effects of preloading on position-dependent EMG activity in humans. *Proc. Soc. Neurosci.* 10: 101.17, 1984.
8. Brown, S.H., Cooke, J.D. Occurrence and timing of movement-related EMG activity. *Proc. Soc. Neurosci.* 11: 209.7, 1985.
9. Cooke, J.D., Brown, S.H. Transition from slow to fast movements: superposition of motor programs. *Proc. Soc. Neurosci.* 11: 24.7, 1985.
10. Ostry, D., Cooke, J.D., Brown, S.H. Characteristics of velocity profiles of human arm movements and speech. *Proc. Soc. Neurosci.* 11: 24.2, 1985.
11. Cooke, J.D., Brown, S.H. Phasic EMG activity is related to the dynamic characteristics of movement. *Proc. European Neurosci. Assoc.* 9, 1986.
12. Cooke, J.D. Brown, S.H., Cunningham, D.A., Brown, J.D. Changes in movement-related EMG activity with aging in normal humans. *Proc. Soc. Neurosci.* 12, 1986.
13. Brown, S.H., Cooke, J.D. Initiation of human arm movements: the initial agonist burst is related to movement acceleration. *IBRO 2nd World Congress, 1987a.*
14. Brown, S.H., Cooke, J.D. Movement-related phasic EMG activity in humans: relations with temporal profiles of arm movements. *Proc. Soc. Neurosci.* 13: 1987b.
15. Brown, S.H., Freund, H.-J. Matching of velocity profiles during bilateral arm movements. *Proc. European Neurosci. Assoc.* 22, 1988.
16. Brown, S.H., Hefter, H., Mertens, M., Cooke, J.D., Freund, H.-J. Changes in movement kinematics due to cerebellar dysfunction. *Proc. Soc. Neurosci.* 14, 1988.
17. Cooke, J.D., Brown, S.H. Generation and functional role of the triphasic EMG pattern in human arm movements. *Proc. European Neurosci. Assoc.* 11, 1988.
18. Brown, S.H., Hefter, H., Cooke, J.D., Freund, H.-J. Duration of movement-related EMG activity in patients with mild cerebellar dysfunction. *Proc. Soc. Neurosci.* 14: 473.2, 1989.
19. Cooke, J.D., Brown, S.H. A common strategy for the control of the initial agonist burst independent of movement type. *Proc. Soc. Neurosci.* 15, 1989.
20. Hefter, H., Cooke, J.D., Brown, S.H., Freund, H.-J. Are small amplitude movements controlled differently from large amplitude movements? *Proc. Soc. Neurosci.* 15, 1989.
21. Brown, S.H., Cooke, J.D., Hefter, H., Toyka, K., Freund, H.-J. Lambert-Eaton myasthenic syndrome: Evaluation of treatment using a simple behavioural task. *Int. Congress Mov. Disorders.* 339, 1990.
22. Brown, S.H., Cooke, J.D., Ohtsuki, T. Effects of visual and proprioceptive information during visuomotor tracking. *Proc. Soc. Neurosci.* 17: 484.4, 1991.
23. Brown, S.H., Kessler, K., Hefter, H., Cooke, J.D., Freund, H.-J. Initiation of eye and arm movements in patients with mild cerebellar ataxia. *IBRO 3rd World Congress* 65:14, 1991.
24. Cooke, J.D., Hefter, H., Brown, S.H., Freund, H.-J. Phasic EMG patterns in isotonic and isometric human arm movements. *Proc. European Neurosci. Assoc.* 2069, 1991.
25. Brown, S.H., Karbe, H., Cooke, J.D., Kertesz, A. Scaling of movement kinematics during motor learning in young and elderly subjects. *Proc. European Neurosci. Assoc.* 15: 3220, 1992.
26. Virji-Babul, N., Brown, S.H., Cooke, J.D. A common movement profile is preserved by EMG changes under different gravitational loads. *Proc. Soc. Neurosci.* 18: 441. 10, 1992.

27. Kessler, K., Brown, S.H., Hefter, H., Cooke, J.D., Freund, H.-J. Role of the cerebellum in generating visually guided eye and arm movements. *Proc. European Neurosci. Assoc.* 15: 3248, 1992.
28. Hefter, H., Brown, S.H., Mertens, M., Cooke, J.D., Freund, H.-J. Differential impairment of fast and slow alternating upper limb movements in cerebellar patients. *Proc. European Neurosci. Assoc.* 15: 3253, 1992.
29. Langenberg, U., Kessler, K., Hefter, H., Cooke, J.D., Brown, S.H., Freund, H.-J. Effects of delayed visual feedback during sinusoidal visuomotor tracking. *Proc. European Neurosci. Assoc.* 15: 3231, 1992.
30. Brown, S.H. Kinematics of arm movements in the elderly. *Proc. ISSBD*: 12, 1993.
31. Brown, S.H., Thaut, M.H., Benjamin, J., Cooke, J.D. Effects of rhythmic auditory cueing on temporal sequencing of complex arm movements. *Proc. Soc. Neurosci.* 19: 227.2, 1993.
32. Virji-Babul, N., Cooke, J.D., Brown, S.H. Comparison of single and two-jointed planar arm movements in humans. *Proc. Soc. Neurosci.* 19: 227.1, 1993.
33. Brown, S.H., Kessler, K., Freund, H.-J. Eye-arm coordination in patients with parietal lobe dysfunction. *Proc. Soc. Neurosci.* 20: 408.17, 1994.
34. Ramos, E., Latash, M., Hurvitz, E., Brown, S.H. Bilateral coordination during reaching movements in children. *Amer. Assoc. Phys. Med. Rehab.* 1994.
35. Kessler, K.H., Brown, S.H., Freund, H.-J. Oculomanual coordination in patients with posterior parietal lesions. *Proc. Soc. Neurosci.* 21: 558.10, 1995.
36. Kessler, K.R., Brown, S.H., Hefter, H., Freund, H.-J. Coordination of eye and arm movements in patients with cerebellar dysfunction. *The Cerebellum: From Structure to Control - Satellite Symposium of the European Neuroscience Assoc* 1995.
37. Thaut, M.H., McIntosh, G.C., Brown, S.H., Rice, R.R. Mezza, C.A., Miller, R.A. Synchronization effects of auditory rhythm on gait I healthy elderly and Parkinson's disease patients. *Proc. Soc. Neurosci.* 21:819.1, 1995.
38. Brown, S.H., Kessler, K.R., Freund, H.-J. Oculomanual coordination in patients with lesions of the cerebellum and parietal cortex. *Human Voluntary Motor Control - Satellite Symposium of 4th World Congress of Neuroscience.* 1995.
39. Flansburg, E.L., Blank, P., Brown, S.H. Effects of visual feedback and initial start position on the temporal coordination of bilateral wrist movements. *Proc. Soc. Neurosci.* 21: 169.6, 1996.
40. Liberzon, T., Brown, S.H. Facilitation of upper limb movements in elderly and Parkinson's Disease subjects using rhythmic auditory stimulation. *Proc. Soc. Neurosci.* 21: 803.3, 1996.
41. Flansburg, E.L., Brown, S. H. The effects of head position on bimanual coordination. *Proc. Soc. Neurosci.* 22: 811.6, 1997.
42. Liberzon, T., Brown, S.H. Timing variability in the performance of rhythmic arm movements. *Proc. Soc. Neurosci.* 22: 811.9, 1997.
43. Conti, G., Brown, S.H. Aging Effects on Bilateral Force Production. *Michigan Occupational Therapy Association Meeting*, 1997.
44. Hurvitz, E., A., Flansburg, E.L., Conti, G.E., Brown, S.H. The use of motor control testing to evaluate response to Botulinum toxin injections in the upper extremity. *Amer. Assoc. Phys. Med. Rehab.* 1998.
45. Liberzon, T., Brown, S.H. Effects of rhythmic auditory cueing on timing variability of sequential arm movements in Parkinson's Disease patients. *Proc. Soc. Neurosci.* 24:653.18, 1998.
46. Liberzon, T., Brown, S.H. The effects of movement characteristics on timing and trajectory variability of rhythmic arm movements. *Proc. Soc. Neurosci.* 25: 1999
47. Larson, C.A., Worringham, C.W., Brown, S.H. Clearance and prehension in essential tremor. *Proc. Soc. Neurosci.* 25: 1999
48. Brown, S.H. Sensory facilitation of upper limb movements in elderly and Parkinson's subjects. 6<sup>th</sup> Int. Congress of Parkinson's Disease and Movement Disorders, June, 2000
49. Conti, G., Hurvitz, E., Brown, S.H. Task-dependent changes in upper limb motor performance following botulinum toxin injection. *Fed. European Neurosci. Soc.* June, 2000
50. Hurvitz, E., Conti, G., Flansburg, E.L. Brown, S.H. Developmental assessment of upper extremity movement and pinch force generation in normal children and in children with myelodysplasia using motor control testing techniques. *Am Acad Phys. Med. Rehab.* 81:1290, 2000
51. Hurvitz, E. Conti, G., Brown, S.H. Botulinum toxin treatment for the spastic upper extremity: comparison between motor control testing and clinical tests. *Amer. Acad Phys. Med. Rehab*, 81:1263, 2000

52. Conti, G., Brown, S.H. Bimanual grasp force control in young and older adults. *Proc. Soc. Neurosci.* 26:61.5, 2000
53. Gregory, R., Brown, S.H. Sensory-enhanced modulation of repetitive upper limb movements in healthy elderly and Parkinson's Disease subjects. *Proc. Soc. Neurosci.* 26: 62.18, 2000
54. Larson, C., Brown, S.H. Task-dependent changes in reach and grasp performance in essential tremor. *Proc. Soc. Neurosci* 26: 61.18, 2000
55. Liberzon, T., Brown, S.H. Control of movement timing during the performance of multi-joint arm movements: effects of load, speed, distance, and external cueing. *Proc. Soc. Neurosci* 26: 2000
56. Conti, G.E., Brown, S.H. Coordination of static and dynamic forces during asymmetric bimanual grasp force tasks. *Proc Soc. Neurosci.* 27:300.7, 2001
57. Huang, M., Gregory, R.S., Samczyk, N.L., Brown, S.H. Kinematics of sequential reaching movements in Parkinson's Disease: effects of task complexity and external cueing on reversal times. *Proc. Soc. Neurosci.* 27:832.1, 2001
58. Gregory, R.W., Smith, K.E., Angulo-Kinzler, R.M., Brown, S.H. Kinematics of sequential reaching movements in Parkinson's Disease: effects of task complexity and external cueing on hand path trajectory. *Proc. Soc. Neurosci.* 27:832.2, 2001.
59. Liberzon, T., Brown, S.H. Impulse variability during multi-joint rhythmic arm movements. *Proc. Soc. Neurosci.* 28: 767.1, 2002
60. Huang, M., Brown, S.H. Sensory Facilitation of Movement Reversals in Parkinson's Disease. *Proc. Soc. Neurosci.* 28.566.2, 2002
61. Adamo, D.E., Martin, B.J., Brown, S.H.. Proprioceptive acuity in young and elderly adults. *Proc Soc. Neurosci.* 29: 7315.15, 2003
62. Conti, G.E., Brown, S.H. Grasp force modulation during bimanual tasks in young and elderly adults. *Proc. Soc. Neurosci.* 29: 2003
63. Goble, D.J., Conti, G.E., Samczyk, N.L., Hurvitz, E., Nelson, V.S., Brown, S.H. Bilateral upper limb coordination in children with brachial plexus injury. *Proc. Soc. Neurosci.* 29: 71.8, 2003
64. Huang, M., Huang, S., Brown, S.H. Effects of auditory cueing on sequential reach and grasp movements in elderly and Parkinson's Disease subjects. *Proc. Soc. Neurosci.* 29: 71.15, 2003
65. Larson, C.A., Brown, S.H. Postural tremor in persons with essential tremor. APTA conference, 2004
66. Goble, D.J., Chesney, J.D., Lewis, C.A., Brown, S.H. Limb asymmetries during passive but not active proprioceptive matching. *Proc. Soc. Neurosci.* 30: 871.14, 2004.
67. Lewis, C.A., Goble, D.J., Hurvitz, E.A., Brown, S.H. Proprioceptive acuity in children with mild spastic hemiparesis. *Proc. Soc. Neurosci.* 30: 181.7, 2004.
68. Adamo, D.E., Brown, S.H. Ipsilateral and contralateral matching of isometric grip force. *Proc. Soc. Neurosci.* 30: 653.11, 2004.
69. Huang, M., Penfold, M.M., Brown, S.H. Coordination of center of pressure excursion and hand path during sequential reaching in young and elderly subjects. *Proc. Soc. Neurosci.* 30: 873.3, 2004
70. Adamo, D.E., Brown, S.H. Upper Limb Proprioceptive Acuity in the Elderly: The Effects of Physical Activity and Hand Preference, Gerontological Society of America conference, 2005
71. Brown, SH., Hurvitz, EA, Conti, GE., Samczyk, NL Improvement in Upper Limb Function in Children with Hemiplegic Cerebral Palsy Following a Six-Week Motor Training Intervention. AAPMR Meeting 2005
72. Goble, DJ. Brown, SH Enhanced Limb Asymmetries during Active versus Passive Proprioceptive target Matching. Neural Control of Movement Meeting, 2005
73. Goble, DJ., Brown, SH Limb Specific Differences in the Ability to Utilize Active versus Passive Proprioceptive Target Information. Progress in Motor Control Conference, 2005
74. Goble, DJ, Hurvitz, EA, Nelson, VS, Brown, SH Bilateral Facilitation of Upper Limb Movements in Children with Congenital Brachial Plexus Palsy. AAPMR Meeting, 2005
75. Lewis, CA, Goble, DJ, Hurvitz, EA, Brown, SH Sensorimotor Coordination in Children with Hemiplegic Cerebral Palsy. AAPMR Meeting, 2005