

## MARK L. LATASH

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### EDUCATION

<u>Institution</u>	<u>Years of study</u>	<u>Degree</u>
Moscow Physics- Technical Institute, Moscow, USSR	1970-1976	B.S. in Physics M.S. in Physics of Living Systems
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<u>M.S. Thesis: <i>Reversals of Tonic Vibration Reflex in Human Muscles</i></u> Rush University, Chicago, Illinois.	1987-1989	<i>Ph.D.</i> in Physiology
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<u>Ph.D. Dissertation: <i>Dynamic Regulation of Single-Joint Voluntary Movements</i></u>		

### PROFESSIONAL EXPERIENCE

**Present Position:** Distinguished Professor, Director of the Motor Control Laboratory (*MCL&PSU*), Department of Kinesiology, Penn State University, University Park, PA.

**1987 - 1994 :** Instructor/Assistant Professor/Associate Professor, Rush-Presbyterian-St. Luke's Medical Center, Department of Neurosurgery, Department of Molecular Biophysics and Physiology, and Department of Physical Medicine and Rehabilitation, Chicago, IL.

**1983 - 1987 :** Biomedical Engineer, Spinal Cord Trauma Center, Hospital 19, Moscow, USSR.

**1979 - 1983 :** Institute for Problems of Information Transmission, Moscow, USSR. Worked without official position because of application for emigration.

**1976 - 1979 :** Junior Scientist, Department of Physiology, Institute of Physical Culture, Moscow, USSR.

### VISITING POSITIONS

**1993 (August-September):** Visiting Scholar, University of Otago, Dunedin, New Zealand.

**1996 (December) – 1997 (January):** Visiting Professor, University of Campinas, Brazil.

**2001 (September-November):** Visiting Scholar, CNRS, Mediterranean University, Marseille, France

**2001 (November-December):** Visiting Scholar, Institute of Neurology, London, UK

**2002 (January-April):** Visiting Professor, University of Ribeirao Preto and University of Sao Paulo, Brazil

**2002 (April-July):** Visiting Scholar, The Institute for Working Life, Umea, Sweden

## TEACHING

### COURSES

#### MOSCOW, RUSSIA

***Physiology for Graduate Students.***

Department of Physiology, Institute of Physical Culture, Moscow, USSR, (1976-1979).

#### CHICAGO, ILLINOIS

***Introduction to Motor Control for Residents in Physical Medicine and Rehabilitation.***

Rush Medical College, Chicago, IL (1990-1993).

***Motor Control: Basic Mechanisms and Pathologies.***

Continuing Medical Education Course, 12 credit hours, Rush Medical College, Chicago, IL (1992-1993).

***Basic Neurophysiology for Residents in Physical Medicine and Rehabilitation.***

Rush Medical College, Chicago, IL (1994).

#### UNIVERSITY PARK, PENNSYLVANIA

***Neurophysiological Basis of Movement.***

Graduate course (3 credit hours). Penn State University, (1995-present).

***Motor Skills.***

Undergraduate course (300 level, 3 credit hours). Penn State University, (1995-1999).

***Movement Disorders.***

Undergraduate course (400 level, 3 credit hours). Penn State University, (1999-present).

***Seminar in Motor Control.***

Graduate course (3 credit hours). Penn State University, (2006-present).

#### TEACHING IN OTHER COUNTRIES

***Motor Control: Basic Mechanisms and Pathologies.***

Graduate course (3 credit hours). University of Campinas, Brazil (1996-1997).

***Seminar in Motor Control.***

Graduate course. University of Ribeirao Preto, Brazil (2002).

***Movement: Control, Coordination, and Learning.***

Intensive Course. University of Kaunas, Lithuania (2007).

### SUMMER SCHOOL

***Organized and Served as Director of the Motor Control Summer School Series***

Annual intensive four-day meetings with about 30 advanced graduate and postdoctoral students and about 10 faculty.

***First Motor Control Summer School***, Jim Thorpe, PA, July 2004

***2-nd Motor Control Summer School***, Ligonier, PA, June 2005

***3-rd Motor Control Summer School***, Ligonier, PA, July 2006

***4-th Motor Control Summer School***, Ligonier, PA, June 2007

***5-th Motor Control Summer School (M.F. Levin, Co-Director)***, Val-des-Lacs, Canada, July 2008

***6-th Motor Control Summer School***, Ligonier, PA, May-June, 2009

***7-th Motor Control Summer School (G. Juras, K. Slomka, Co-Directors)***, Wisla, Poland, June 2010

***8-th Motor Control Summer School***, Ligonier, PA, June 2011.

Mark L. Latash

*9-th Motor Control Summer School* (J. Laczko, Co-Director), Tihany, Hungary, June 2012.

**ADVISING GRADUATE STUDENTS**

<i>Name</i>	<i>Years of study</i>	<i>Degree</i>	<i>Next/current position</i>
Mark Shapiro	1992-1996	Ph.D.	Senior Researcher, Northwestern University, Chicago, IL
Takako Shiratori	1995-2000	M.S., Ph.D.	Research Assistant Professor, University of Illinois, Chicago, IL
Harmen Slijper	1998-2001	Ph.D.	Researcher, Erasmus University, The Netherlands
Sheng Li	1999-2002	Ph.D.	Assistant Professor, University of Montana, Missoula, MT
Ning Kang	2001-2003	M.S.	Graduate program, UCLA
Vijaya Krishnamoorthy	2001-2004	Ph.D.	Assistant Professor, Emory University, Atlanta, GA
Siripan Siwasakunrat	2003-2005	M.S.	Professor, University of Bangkok, Thailand
Jae Kun Shim	2002-2005	Ph.D.	Assistant Professor, University of Maryland, College Park, MD
Halla Olafsdottir	2002-2007	M.S., Ph.D.	Postdoctoral Fellow, Mediterranean University, France
Stacey Gorniak	2004-2009	M.S. Ph.D.	Assistant Professor, University of Houston, TX
Wei Zhang	2004-2008	Ph.D.	Postdoctoral Fellow, Columbia University, Arizona State University
Alessander Danna-Dos-Santos	2004-2008	Ph.D.	Assistant Professor, University of Montana, Missoula, MT
Sun Wook Kim	2006-2008	M.S.	Engineer, Hyundai, South Korea
Varadhan Srinivasan Kariyamaanikam	2007-2011	Ph.D.	Professor, India
Shweta Kapur	2008-2010	M.S.	Physical therapist, New York
Tarkeshwar Singh	2008-	Ph.D.	Currently enrolled
Yao Sun	2009-2011	M.S.	Doctoral student.
Yen-Hsun Wu	2010-	Ph.D.	Currently enrolled
Tao Zhou	2011-	Ph.D.	Currently enrolled

**Service on Dissertation Committees**

***Pennsylvania State University:***

Robert Van Deursen, Steve Morrison, Zong-Ming Li, William Sloboda, Nikitas Tsaousidis, Deborah King, Bin Xia, Deric Wisleder, Cathy Eslinger, Paola Cesari, David Vaillancourt, Jamie Johnston, Joe Schinsky, Marc Grosjean, Hiromu Katsumata, Katherine Deutsch, Jordan Lateiner, Todd Pataky, Hong Yu, Fan Gao, Jacob Sosnoff, Andrew Vallentine, Pratik Mutha, Sydney Shaefer, Xun Niu, Kyle Budgeon, Rajiv Ranganathan, Jiangwei Xue, Joel Martin, Xiaogang Hu, Yang Xu.

***University of Calgary, Canada:*** Motoshi Kaya;

***University of Otago, New Zealand:*** Alan Walmsley;

***University of Michigan, Ann Arbor:*** Sandra McKay;

***University of Delaware, Newark:*** Jeng-Feng Yang, Vennila Krishnan, Mehmet Uygur;

***McGill University, Canada:*** Sheila Schneiberg;

***Aalborg University, Denmark:*** Pascal Madelaine;

***Nanyang Technological University, Singapore:*** Lan Li;

***University of Illinois, Chicago:*** Sambit Mohapatra.



**POSTDOCTORAL STUDENTS AND TRAINEES**

<i>Name</i>	<i>Years of study</i>	<i>Next/current position</i>
Gil Lucio Almeida	1993-1995	Professor, University of Ribeirao Preto, Brazil
Kazuhisa Domen	1995-1996	Research Professor, ATR Labs, Nara Attending physician, Tokyo, Japan
Frederic Danion	1997-2000	Researcher, CNRS, Marseille, France
Minoru Shinohara	2000-2002	Associate Professor, Georgia Tech University, Atlanta
Brendan Lay	2002-2003	Assistant Professor, University of Western Australia, Perth, Australia
Luis Mochizuki	2001-2002	Assistant Professor, University of San Paulo, Brazil
Zbigniew Waskiewicz	2002	Rector, Academy of Physical Education, Katowice, Poland
Tetsuo Ota	2002-2003	Faculty, Keio University School of Medicine, Japan
Naoki Yoshida	2003-2004	Faculty, Keio University School of Medicine, Japan
Tadayoshi Asaka	2004-2005	Faculty, Hokkaido University College of Medicine, Sapporo City, Japan
Kajetan Slomka	2004-2005	Assistant Professor, Academy of Physical Education, Katowice, Poland
Elena Shapkova	2005, 2007-2009	Researcher, Institute of Tuberculosis, St.Petersburg, Russia
Thomas Robert	2006-2007	Researcher, INRETS, University of Lyon, France
Jason Friedman	2007-2009	Researcher, University of Sydney, Australia
Miriam Klous	2008-2011	Assistant Professor, College of Charleston, SC
Pavle Mikulic	2009-2010	Associate Professor, University of Zagreb, Croatia
Jaebum Park	2009-	Current
Julien Lardy	2011	Researcher, INRETS, University of Lyon, France
Stanislaw Solnik	2011-	Current
Nemanja Pazin	2011-	Current

**COLLEAGUES WHO WORKED IN THE MCL&PSU**

<i>Name</i>	<i>Years</i>	<i>Current position</i>
Alexander Aruin	1993-1996	Professor, University of Illinois, Chicago
Gregor Schöner	1995	Professor, Ruhr University, Germany
John Scholz	1996-1997	Professor, University of Delaware, Newark
J. Greg Anson	1998-1999	Professor, University of Auckland, New Zealand
Simon Goodman	2001-2008	Retired
Marcos Duarte	2005	Professor, University of San Paulo, Brazil

## **ADMINISTRATION AND SERVICE**

### **ADMINISTRATIVE POSITIONS**

#### ***Director of Graduate Studies***

Department of Kinesiology, Penn State University - 1999-2001

#### ***Director of the Motor Control Laboratory***

Department of Kinesiology, Penn State University, since 1995

#### ***Director of the Motor Control Summer School***

Since 2004

#### ***Chairperson of the Organizing Committees of Conferences:***

Motor Control in Down Syndrome-I, 1989, Chicago, IL,

Motor Control in Down Syndrome-II, 1994, Chicago, IL.

Bernstein Traditions in Movement Studies (Progress in Motor Control-I), 1996, University Park, PA

Progress in Motor Control-II, 1999, University Park, PA

### **SERVICE ON REVIEW PANELS FOR GOVERNMENT AGENCIES**

#### ***National Institutes of Health***

Member of the NIH Special Emphasis Panel on Geriatrics and Rehabilitation – 1996-1999

Member of the NIH site visit Committee (Atlanta) - 1999

Member (1998-2002) and Chairperson (1999-2001) of the NIH Study Section BBBP-7.

Member (2002-2005) and Chairperson (2004-2005) of the NIH Study Section MFSR.

Special Emphasis NIH review panels MESH, BBBP-H, SMEP-Chairperson (2005), BBBP-E02-Chairperson (2006, 2007).

Member (2008-current) and Chairperson (2010-current) of the NIH Study Section MRS.

#### ***Reviewed Grant Applications for:***

National Science Foundation, National Institutes of Health, National Research Council, Air Force Office for Scientific Research, Medical Research Council of Canada, Netherlands Life Science Foundation, Swiss National Science Foundation.

### **SERVICE ON COMMITTEES**

Committee on Awards (Chair), Graduate Admission Committee, Candidacy Examination Committee (Chair), Advisory Committee, Curriculum Committee, Promotion and Tenure Committee (Chair), College Seed Grant Committee, College Sabbatical Application Review Committee, College Curriculum Committee, Search Committees (Chair), Science, Research and Practice Advisory Board of The Down Syndrome Educational Trust (UK).

### **PROFESSIONAL SOCIETIES**

Society for Neuroscience, American Society of Biomechanics, International Society of Motor Control (President, 2001-2005)

### **EDITORIAL ACTIVITIES**

"Motor Control" - *The Editor*, 1996-2007

**Editorial Boards:** "Human Movement Science", "Journal of Human Kinetics", "Kinesiology", "Motor Control" (section Editor).

## RESEARCH

### GRANTS AWARDED

- "Single-Joint Voluntary Motor Control in Down's Syndrome Patients"  
*Down's Syndrome Research Fund*, Time period 2/01/89 - 3/01/90, Direct costs: \$9,230
- "Improved Voluntary Motor Control in Spastic Paresis" (R.D. Penn - Co-PI)  
*American Paralysis Association, No LA1-8901-1*, 7/1/89 - 1/15/91, Direct costs: \$29,898
- "Dynamic Regulation of Voluntary Movements"  
*NIH, NCMRR, FIRST Award, R29 HD30128*, 07/01/92 - 06/30/97, Direct costs: \$349,316
- "Anticipatory Postural Reactions in Parkinson's Disease"  
*Rush University Committee on Research*, 07/15/93 - 07/14/94, Direct costs: \$9,950
- "Second International Conference 'Motor Control in Down Syndrome'"  
*Down's Syndrome Research Fund*, Time period 1/1/94 - 12/31/94, Direct costs: \$4,172
- "Peripheral and Central Factors in Fatigue in Multiple Sclerosis"  
*National Multiple Sclerosis Society # PP 0363*, 3/1/94 - 2/28/95, Direct costs: \$19,670
- Conference "Bernstein's Traditions in Motor Control", August 22-25, 1996  
*Whitaker Foundation*, Direct costs: \$7,500  
*Continuing and Distance Education, Penn State University*, Direct costs: \$10,000  
*Human Kinetics Publishers*, Direct Costs: \$4,000
- "The Organization of a Simple Synergy"  
*NIH, NINDS, R01 NS35032-01-05*, 02/01/97 - 01/31/02, Direct costs: \$466,555
- Conference "Progress in Motor Control-II", August 19-22, 1999  
*Whitaker Foundation*, Direct costs: \$5,000  
*Continuing and Distance Education, Penn State University*, Direct costs: \$4,000  
*Human Kinetics Publishers*, Direct Costs: \$4,000
- "Hand and Finger Coordination in Down Syndrome" (D. Patterson – Co-PI)  
*Coleman Institute at the University of Colorado*, 04/01/01 – 03/31/02, \$51,000
- "Finger Coordination in Elderly"  
*NIH, NIA, R01 AG018751*, 09/01/01 - 08/31/06, Direct costs: \$950,000
- "The Organization of a Simple Synergy" – competing continuation  
*NIH, NINDS, R01 NS35032-06-09*, 02/01/02 - 01/31/06, Direct costs: \$850,000
- "The Organization of a Simple Synergy" – competing continuation  
*NIH, NINDS, R01 NS35032-10-14*, 02/01/06 - 01/31/11, Direct costs: \$1,150,000
- "Finger Coordination in Elderly" – competing continuation  
*NIH, NIA, R01 AG018751-06-11*, 02/01/07 - 01/31/12, Direct costs: \$1,150,000
- "The Organization of a Simple Synergy" – competing continuation  
*NIH, NINDS, R01 NS35032-15-19*, 02/01/11 - 01/31/16, Direct costs: \$1,250,000

### PROFESSIONAL AWARDS

- First Independent Research Transition (FIRST) Award (1992, National Institutes of Health)
- William Evans Fellow (1995, University of Otago, New Zealand)
- Helen G. and Evan G. Pattishall Outstanding Research Achievement Award (2001, Penn State Univ.)
- Elected Active Fellow (2002, National Academy of Kinesiology, USA)
- Pauline Schmitt Russell Distinguished Research Career Award (2004, Penn State University)
- Appointed Distinguished Professor of Kinesiology (2005, Penn State University)
- Bernstein Prize (2007, International Society of Motor Control)
- Exceptional Contribution Award (2008, Academy of Physical Education, Katowice, Poland)
- *Doctor honoris causa* (2010, Academy of Physical Education, Katowice, Poland)

**PERSONAL:** Born July 25, 1953 in Moscow, USSR. USA citizen.

## REFEREED PUBLICATIONS

### 1976-1986

- Latash M.L. & Gurfinkel V.S. (1976) Tonic vibration reflex and position of the body. Physiologiya Cheloveka, **2**: 593-598. (English translation of the Journal is available as Human Physiology).
- Gurfinkel V.S. & Latash M.L. (1978) Reflex reversals in shin muscles. Physiologiya Cheloveka, **4**: 30-35. (English translation of the Journal is available as Human Physiology).
- Gurfinkel V.S. & Latash M.L. (1979) Segmental postural mechanisms and reversal of muscle reflexes. Agressologie, **20B**: 145-146.
- Gurfinkel V.S., Lipshits M.I., Latash M.L. & Popov K.E. (1979) An investigation of human postural regulation with bilateral vibration of muscles. Agressologie, **20B**: 151-152.
- Feldman A.G. & Latash M.L. (1982) Afferent and efferent components of joint position sense: Interpretation of kinaesthetic illusions. Biological Cybernetics, **42**: 205-214.
- Feldman A.G. & Latash M.L. (1982) Inversions of vibration-induced senso-motor events caused by supraspinal influences in man. Neuroscience Letters, **31**: 147-151.
- Feldman A.G. & Latash M.L. (1982) Interaction of afferent and efferent signals underlying joint position sense: Empirical and theoretical approaches. Journal of Motor Behavior, **14**: 174-193.
- Latash M.L. (1986) Coordination, grammar, and spasticity. Behavioral and Brain Sciences, **9**: 612.
- Livshits A.V., Belyaev V.I. & Latash M.L. (1986) Jendrassik manoeuvre for determining efferent conduction in spinal cord trauma. Problems of Neurosurgery, **N 5**, 43-47. (in Russian).

### 1988

10. Latash M.L. (1988) "Early" and "late" components of spinal evoked potentials in spinal cord trauma patients. Electromyography and Clinical Neurophysiology, **28**: 175-181.
- Latash M.L. (1988) Spectral analysis of the electromyogram (EMG) in spinal cord trauma patients. I. Different types of the EMG and corresponding spectra. Electromyography and Clinical Neurophysiology, **28**: 319-327.
- Latash M.L. (1988) Spectral analysis of the electromyogram (EMG) in spinal cord trauma patients. II. Motor unit and interference EMG power spectra. Electromyography and Clinical Neurophysiology, **28**: 329-334.

### 1989

- Latash M.L. (1989) Direct pattern-imposing control or dynamic regulation? Behavioral and Brain Sciences, **12**: 226-227.
- Latash M.L., Penn R.D., Corcos D.M. & Gottlieb G.L. (1989) Short-term effects of intrathecal baclofen in spasticity. Experimental Neurology, **103**: 165-172.
- Penn R.D., Savoy S., Corcos D., Latash M., Gottlieb G., Parke B. & Kroin J. (1989) Intrathecal baclofen for severe spinal spasticity: A double-blind crossover study. New England Journal of Medicine, **320**: 1517-1521.

### 1990

- Gottlieb G.L., Corcos D.M., Agarwal G.C. & Latash M.L. (1990) Organizing principles for single joint movements: III - The speed-insensitive strategy as default. Journal of Neurophysiology, **63**: 625-636.
- Latash M.L. & Gottlieb G.L. (1990) Compliant characteristics of single joints: Preservation of equifinality with phasic reactions. Biological Cybernetics, **62**: 331-336.
- Latash M.L. & Gottlieb G.L. (1990) Equilibrium-point hypothesis and variability of the amplitude, speed, and time of single-joint movements. Biofizika, **35**: 870-874.
- Latash M.L., Penn R.D., Corcos D.M. & Gottlieb G.L. (1990) Effects of intrathecal baclofen on voluntary motor control in spastic paresis. Journal of Neurosurgery, **72**: 388-392.

**1991**

20. Latash M.L. & Corcos D.M. (1991) Kinematic and electromyographic characteristics of single-joint movements of individuals with Down syndrome. American Journal of Mental Retardation **96**: 189-201.
- Latash M.L. & Gottlieb G.L. (1991) Reconstruction of elbow joint compliant characteristics during fast and slow voluntary movements. Neuroscience, **43**: 697-712.
- Latash M.L. & Gottlieb G.L. (1991) An equilibrium-point model for fast single-joint movement. I. Emergence of strategy-dependent EMG patterns. Journal of Motor Behavior **23**: 163-177.
- Latash M.L. & Gottlieb G.L. (1991) An equilibrium-point model for fast single-joint movement. II. Similarity of single-joint isometric and isotonic descending commands. Journal of Motor Behavior **23**: 179-191.
- Latash M.L., Gutman S.R. & Gottlieb G.L. (1991) Relativistic effects in single-joint voluntary movements. Biological Cybernetics **65**: 401-406.

**1992**

- Corcos D.M., Gottlieb G.L., Latash M.L., Almeida G.L. & Agarwal G.C. (1992) Electromechanical delay: An experimental artifact. Journal of Electromyography and Kinesiology **2**: 59-68.
- Gottlieb G.L., Latash M.L., Corcos D.M., Liubinskas T.J. & Agarwal G.C. (1992) Organizing principles for single joint movements. V. Agonist-antagonist interactions. Journal of Neurophysiology **67**: 1417-1427.
- Jaric S., Corcos D.M. & Latash M.L. (1992) Effects of practice on final position reproduction. Experimental Brain Research **91**: 129-134.
- Latash M.L. (1992) Virtual trajectories, joint stiffness, and changes in natural frequency during single-joint oscillatory movements. Neuroscience **49**: 209-220.
- Latash M.L. (1992) Independent control of joint stiffness in the framework of the equilibrium-point hypothesis. Biological Cybernetics **67**: 377-384.
30. Latash M.L. (1992) Motor control in Down syndrome: The role of adaptation and practice. Journal of Developmental and Physical Disabilities **4**: 227-261.
- Latash M.L. (1992) Are we able to preserve a motor command in the changing environment? Behavioral and Brain Science **15**: 771-773.
- Latash M.L. & Gottlieb G.L. (1992) Virtual trajectories of single-joint movements performed under two basic strategies. Neuroscience **47**: 357-365.

**1993**

- Gutman S.R., Latash M.L., Gottlieb G.L. & Almeida G.L. (1993) Kinematic description of variability of fast movements: Analytical and experimental approaches. Biological Cybernetics **69**: 485-492.
- Latash M.L., Almeida G.L. & Corcos D.M. (1993) Pre-programmed reactions in individuals with Down syndrome: The effects of instruction and predictability of the perturbation. Archives of Physical Medicine and Rehabilitation **73**: 391-399.
- Latash M.L. & Zatsiorsky V.M. (1993) Joint stiffness: Myth or reality? Human Movement Science **12**: 653-692.
- Zatsiorsky V.M. & Latash M.L. (1993) What is a joint torque for joints spanned by multi-articular muscles? Journal of Applied Biomechanics **9**: 333-336.

**1994**

- Latash L.P. & Latash M.L. (1994) A new book by N. A. Bernstein: "On Dexterity and Its Development". Journal of Motor Behavior **26**: 56-62.
- Latash M.L. (1994) Control of fast elbow movement: A study of electromyographic patterns during movements against unexpectedly decreased inertial load. Experimental Brain Research **98**: 145-152.

- Latash M.L., Yee M., Orpett C., Slingo A. & Nicholas J.J. (1994) Combining electrical muscle stimulation with voluntary contraction for studying muscle fatigue. Archives of Physical Medicine and Rehabilitation. **75**: 29-35.
40. Latash M.L. & Gutman S.R. (1994) Abnormal motor patterns in the framework of the equilibrium-point hypothesis: A cause for dystonic movements? Biological Cybernetics **71**: 87-94.
- Jaric S., Corcos D.M., Gottlieb G.L., Ilic D.B. & Latash M.L. (1994) The effects of practice on movement distance and final position reproduction: Implications for the equilibrium-point control of movements. Experimental Brain Research **100**: 353-359.
- Latash M.L. (1994) The relative role of the monosynaptic and polysynaptic pathways in alpha-motoneuron recruitment in the tonic vibration reflex. Human Physiology (Fiziologiya Cheloveka), **20**: #2, 99-106. (In Russian).
- Latash M.L. (1994) Synchronization of motor unit discharges during voluntary muscle contraction with simultaneous muscle vibration. Human Physiology (Fiziologiya Cheloveka), **20**: #3, 98-103. (In Russian).
- Latash M.L. (1994) Reversals of the tonic vibration reflex in shoulder muscles. Human Physiology (Fiziologiya Cheloveka), **20**: #5, 56-60. (In Russian).
- Latash M.L. (1994) Reconstruction of equilibrium trajectories and joint stiffness patterns during single-joint voluntary movements under different instructions. Biological Cybernetics **71**: 441-450.
- Almeida G.L., Corcos D.M. & Latash M.L. (1994) Practice and transfer effects during fast single joint elbow movements in individuals with Down syndrome. Physical Therapy **74**: 1000-1016.
- Latash M.L. (1994) Ideas and methods in movement studies in Down syndrome. Brazilian International Journal of Adapted Physical Education Research, **1**: 138-140.
- Latash M.L. & Gutman S.R. (1994) An equilibrium-point model of electromyographic patterns during single-joint movements based on experimentally reconstructed control signals. Journal of Electromyography and Kinesiology **4**: 230-241.

### 1995

- Almeida G.L. & Latash M.L. (1995) Paradoxical effects of practice of fast single-joint movements. Medicine and Science in Sports and Exercise **27**: 1540-1549.
50. Aruin A.S. & Latash M.L. (1995) Directional specificity of postural muscles in feed-forward postural reactions during fast voluntary arm movements. Experimental Brain Research **103**: 323-332.
- Aruin A.S. & Latash M.L. (1995) The role of motor action in anticipatory postural adjustments studied with self-induced and externally-triggered perturbations. Experimental Brain Research **106**: 291-300.
- Latash M.L. (1995) Equilibrium-point control? Yes! Deterministic mechanisms of control? No! Behavioral and Brain Sciences **18**: 765-766.
- Latash M.L., Aruin A.S., Neyman I., Nicholas J.J. (1995) Anticipatory postural adjustments during self-inflicted and predictable perturbations in Parkinson's disease. Journal of Neurology, Neurosurgery, and Psychiatry **58**: 326-334.
- Latash M.L., Aruin A.S., Neyman I., Nicholas J.J. & Shapiro M.B. (1995) Feedforward postural reactions in patients with Parkinson's disease in a two-joint motor task. Electroencephalography and Clinical Neurophysiology **97**: 77-89.
- Latash M.L., Aruin A.S. & Shapiro M.B. (1995) The relation between posture and movement: A study of a simple synergy in a two-joint task. Human Movement Science **14**: 79-107
- Shapiro M.B., Aruin A.S. & Latash M.L. (1995) Velocity dependent activation of postural muscles in a simple two-joint synergy. Human Movement Science **14**: 351-369.
- Latash M.L. (1995) Changes of human vertical posture due to vibration of shoulder muscles. Human Physiology (Fiziologiya Cheloveka), **21**: #1, 125-128. (In Russian).

Burgess P.R., Cooper T.A., Gottlieb G.L. & Latash M.L. (1995) The sense of effort and two models of single-joint motor control. Somatosensory and Motor Research **12**: 343-358.

### 1996

Latash M.L. & Anson J.G. (1996) What are normal movements in atypical populations? Behavioral and Brain Sciences **19**: 55-106.

60. Anson J.G. & Latash M.L. (1996) Towards peaceful coexistence of adaptive central strategies and medical professionals. Behavioral and Brain Sciences **19**: 94-106.

Latash M.L., Kalugina E., Nicholas J.J., Orpett C., Stefoski D. & Davis F. (1996) Myogenic and central neurogenic factors in fatigue in multiple sclerosis. Multiple Sclerosis **1**: 236-241.

Latash M.L. & Nicholas J.J. (1996) Motor control research in rehabilitation medicine. Disability and Rehabilitation **18**: 293-299.

Aruin A.S., Neyman I., Nicholas J.J. & Latash M.L. (1996) Are there deficits in anticipatory postural adjustments in Parkinson's disease? NeuroReport **7**: 1794-1796.

Ilic D.B., Corcos D.M., Gottlieb G.L., Latash M.L. & Jaric S. (1996) The effects of practice on movement reproduction: Implications for models of motor control. Human Movement Science **15**: 101-114.

Latash L.P. & Latash M.L. (1996) The notions of joint stiffness and synaptic plasticity in motor memory. Behavioral and Brain Sciences **19**: 465-466.

Aruin A.S., Almeida G.L. & Latash M.L. (1996) Organization of a simple two-joint synergy in individuals with Down syndrome. American Journal of Mental Retardation **101**: 256-268.

Aruin A.S. & Latash M.L. (1996) Anticipatory postural adjustments during self-initiated perturbations of different magnitude triggered by a standard motor action. Electroencephalography and Clinical Neurophysiology **101**: 497-503.

Latash M.L. & Penn R.D. (1996) Changes in voluntary motor control induced by intrathecal baclofen. Physiotherapy Research International **1**: 229-246.

### 1997

Aruin A.S., Nicholas J.J. & Latash M.L. (1997) Anticipatory postural adjustments during standing in below the knee amputees. Clinical Biomechanics **12**: 52-59.

70. Latash M.L. & Schöner G. (1997) Flawed kinematic models cannot provide insight into the nature of motor variability. Behavioral and Brain Sciences **20**: 314-315.

Latash M.L. & Anson J.G. (1997) Does controlling movement require intelligence? Behavioral and Brain Sciences **20**: 533-536.

### 1998

Jaric S. & Latash M.L. (1998) Learning a motor task involving obstacles by a multi-joint, redundant limb: Two synergies within one movement. Journal of Electromyography and Kinesiology **8**: 169-176.

Latash M.L. (1998) Virtual reality: A fascinating tool for motor rehabilitation. (To be used with caution). Disability and Rehabilitation **20**: 104-105.

Li Z.-M., Latash M.L., Zatsiorsky V.M. (1998) Force sharing among fingers as a model of the redundancy problem. Experimental Brain Research **119**: 276-286.

Jaric S., Gottlieb G.L., Latash M.L., Corcos D.M. (1998) Changes in the symmetry of rapid movements: Effects of velocity and viscosity. Experimental Brain Research **120**: 52-60.

De Wolf S., Slijper H., Latash M.L. (1998) Anticipatory postural adjustments during self-paced and reaction-time movements. Experimental Brain Research **121**: 7-19.

Latash M.L., Li Z.-M., Zatsiorsky V.M. (1998) A principle of error compensation studied within a task of force production by a redundant set of fingers. Experimental Brain Research **122**: 131-138.

- Latash M.L., Jaric S. (1998) Instruction-dependent muscle activation patterns within a two-joint synergy: Separating mechanics from neurophysiology. Journal of Motor Behavior **30**: 194-198.
- Zatsiorsky V.M., Li Z.-M., Latash M.L. (1998) Coordinated force production in multi-finger tasks. Finger interaction and neural network modeling. Biological Cybernetics **79**: 139-150.
80. Li Z.-M., Latash M.L., Newell K.M., Zatsiorsky V.M. (1998) Motor redundancy during maximal voluntary contraction in four-finger tasks. Experimental Brain Research **122**: 71-78.
- Aruin A.S., Forrest W.R., Latash M.L. (1998) Anticipatory postural adjustments in conditions of postural instability. Electroencephalography and Clinical Neurophysiology **109**: 350-359.
- Gelfand I.M., Latash M.L. (1998) On the problem of adequate language in motor control. Motor Control **2**: 306-313.
- Latash M.L., Gelfand I.M., Li Z.-M., Zatsiorsky V.M. (1998) Changes in the force sharing pattern induced by modifications of visual feedback during force production by a set of fingers. Experimental Brain Research **123**: 255-262.
- Scholz J.P., Latash M.L. (1998) A study of a bimanual synergy associated with holding an object. Human Movement Science **17**: 753-779.

### **1999**

- Latash M.L., Aruin A.S., Zatsiorsky V.M. (1999) The basis of a simple synergy: Reconstruction of joint equilibrium trajectories during unrestrained arm movements. Human Movement Science **18**: 3-30.
- Jaric S., Milanovic S., Blezic S., Latash M.L. (1999) Changes in movement kinematics during single-joint movements against expectedly and unexpectedly changed inertial loads. Human Movement Science **18**: 49-66.
- Domen K., Zatsiorsky V.M., Latash M.L. (1999) Reconstruction of equilibrium trajectories during whole-body movements. Biological Cybernetics **80**: 195-204.
- Latash M.L. (1999) Mirror writing: Learning, transfer, and implications for internal inverse models. Journal of Motor Behavior **31**: 107-112.
- Latash L.P., Latash M.L., Meijer O.G. (1999) Thirty years later: On the problem of the relation between structure and function in the brain from a contemporary viewpoint (1966). Part I. Motor Control, **3**: 329-345.
90. Jaric S., Latash M.L. (1999) Learning a pointing task with a kinematically redundant limb: Emerging synergies and patterns of final position variability. Human Movement Science **18**: 819-838.

### **2000**

- Danion F., Latash M.L., Li Z.-M., Zatsiorsky V.M. (2000) The effects of fatigue on multi-finger coordination in force production tasks. Journal of Physiology, **523**: 523-532.
- Laczko J., Jaric S., Tihaniy J., Zatsiorsky V.M., Latash M.L. (2000) Components of the end-effector jerk during voluntary arm movements. Journal of Applied Biomechanics, **16**: 14-26.
- Latash L.P., Latash M.L., Meijer O.G. (2000) Thirty years later: On the problem of the relation between structure and function in the brain from a contemporary viewpoint (1966). Part II. Motor Control, **4**: 125-149.
- Latash M.L. (2000) Modulation of simple reaction time on the background of an oscillatory action: Implications for synergy organization. Experimental Brain Research **131**: 85-100.
- Li Z.-M., Zatsiorsky V.M., Latash M.L. (2000) Contribution of the extrinsic and intrinsic hand muscles to the moments in finger joints. Clinical Biomechanics **15**: 203-211.
- Zatsiorsky V.M., Li Z.-M., Latash M.L. (2000) Enslaving effects in multi-finger force production. Experimental Brain Research **131**: 187-195.
- Shiratori T., Latash M.L. (2000) The roles of proximal and distal muscles in anticipatory postural adjustments under asymmetrical perturbations and during standing on rollerskates. Clinical Neurophysiology **111**: 613-623.

- Latash M.L. (2000) The organization of quick corrections within a two-joint synergy in conditions of unexpected blocking and release of a fast movement. Clinical Neurophysiology **111**: 975-987.
- Latash M.L. (2000) There is no motor redundancy in human movements. There is motor abundance. Motor Control, **4**: 257-259.
100. Scholz J.P., Schöner G., Latash M.L. (2000) Identifying the control structure of multijoint coordination during pistol shooting. Experimental Brain Research **135**: 382-404.
- Li S., Danion F., Latash M.L., Li Z.-M., Zatsiorsky V.M. (2000) Finger coordination in multi-finger force production tasks involving fingers of the right hand and/or fingers of the left hand. Journal of Applied Biomechanics **16**: 379-391.
- Slijper H., Latash M.L. (2000) The effects of instability and additional hand support on anticipatory postural adjustments in leg, trunk, and arm muscles during standing. Experimental Brain Research **135**: 81-93.
- Latash M.L. (2000) The past and present of the equilibrium-point hypothesis. Journal of Human Kinetics **4** (Supplement): 25-37.
- Jaric S., Latash M.L. (2000) The equilibrium-point hypothesis is still doing fine. Human Movement Science **19**: 933-938.
- Li S., Danion F., Latash M.L., Li Z.-M., Zatsiorsky V.M. (2000) Characteristics of finger force production during one- and two-hand tasks. Human Movement Science **19**: 897-924.

### 2001

- Aruin A.S., Ota T., Latash M.L. (2001) Anticipatory postural adjustments associated with lateral and rotational perturbations during standing. Journal of Electromyography and Kinesiology **11**: 39-51.
- Aruin A.S., Shiratori T., Latash M.L. (2001) The role of action in postural preparation for loading and unloading in standing subjects. Experimental Brain Research **138**: 458-466.
- Li Z.-M., Zatsiorsky V.M., Latash M.L. (2001) The effects of finger extensor mechanism on the flexor force during isometric tasks. Journal of Biomechanics **34**: 1097-1102.
- Shiratori T., Latash M.L. (2001) Anticipatory postural adjustments during load catching by standing subjects. Clinical Neurophysiology **112**: 1250-1265.
110. Danion F., Latash M.L., Li Z.-M., Zatsiorsky V.M. (2001) The effect of a fatiguing exercise by the index finger on single- and multi-finger force production tasks. Experimental Brain Research **138**: 322-329.
- Li Z.-M., Zatsiorsky V.M., Li S., Danion F., Latash M.L. (2001) Bilateral multifinger deficits in symmetric key-pressing tasks. Experimental Brain Research **140**: 86-94
- Latash M.L., Scholz J.F., Danion F., Schöner G. (2001) Structure of motor variability in marginally redundant multi-finger force production tasks. Experimental Brain Research **141**: 153-165.
- Li S., Danion F., Latash M.L., Li Z.-M., Zatsiorsky V.M. (2001) Bilateral deficit and symmetry in finger force production during two-hand multi-finger tasks. Experimental Brain Research **141**: 530-540

### 2002

- Scholz J.P., Danion F., Latash M.L., Schöner G. (2002) Understanding finger coordination through analysis of the structure of force variability. Biological Cybernetics **86**: 29-39.
- Slijper H., Latash M.L., Mordkoff J.T. (2002) Anticipatory postural adjustments under simple and choice reaction time conditions. Brain Research **924**: 184-197.
- Latash M.L., Li S., Danion F., Zatsiorsky V.M. (2002) Central mechanisms of finger interaction during one- and two-hand force production at distal and proximal phalanges. Brain Research **924**: 198-208.
- Latash M.L., Scholz J.P., Schöner G. (2002) Motor control strategies revealed in the structure of motor variability. Exercise and Sport Science Reviews **30**: 26-31.

- Domkin D., Laczko J., Jaric S., Johansson H., Latash M.L. (2002) Structure of joint variability in bimanual pointing tasks. Experimental Brain Research **143**: 11-23.
- Slijper H., Latash M.L., Rao N., Aruin A.S. (2002) Task specific modulation of anticipatory postural adjustments in hemiparetic individuals. Clinical Neurophysiology **113**: 642-655.
120. Latash M.L., Jaric S. (2002) The organization of drinking: Postural characteristics of the arm-head coordination. Journal of Motor Behavior **34**: 139-150.
- Anson J.G., Hasegawa Y., Kasai T., Latash M.L., Yahagi S. (2002) EMG discharge patterns during human grip movement are task-dependent and not modulated by muscle contraction modes: a transcranial magnetic stimulation (TMS) study. Brain Research **934**: 162-166.
- Zatsiorsky V.M., Gregory R.W., Latash M.L. (2002) Force and torque production in static multi-finger prehension: Biomechanics and Control. Part I. Biomechanics. Biological Cybernetics **87**: 50-57.
- Zatsiorsky V.M., Gregory R.W., Latash M.L. (2002) Force and torque production in static multi-finger prehension: Biomechanics and Control. Part II. Control. Biological Cybernetics **87**: 40-49.
- Li Z.-M., Zatsiorsky V.M., Latash M.L., Bose N.K. (2002) Anatomically and experimentally based neural networks modeling force coordination in static multi-finger tasks. Neurocomputing **47**: 259-275.
- Li S., Danion F., Zatsiorsky V.M., Latash M.L. (2002) Coupling phenomena during asynchronous submaximal two-hand, multi-finger force production tasks. Neuroscience Letters **331**: 75-78.
- Latash M.L. (2002) Mirror writing: Adults making A-non-B errors? Behavioral and Brain Sciences **24**: 46.
- Danion F., Li S., Zatsiorsky V.M., Latash M.L. (2002) Relations between surface EMG of extrinsic flexors and individual finger forces support the notion of muscle compartments. European Journal of Applied Physiology **88**: 185-188.
- Krishnamoorthy V., Slijper H., Latash M.L. (2002) Effects of different types of light touch on postural sway. Experimental Brain Research **147**: 71-79.
- Latash M.L., Kang N., Patterson D. (2002) Finger coordination in persons with Down syndrome: Atypical patterns of coordination and the effects of practice. Experimental Brain Research **146**: 345-355.
130. Latash M.L., Scholz J.F., Danion F., Schöner G. (2002) Finger coordination during discrete and oscillatory force production tasks. Experimental Brain Research **146**: 412-432.

### 2003

- Shinohara M., Li S., Kang N., Zatsiorsky V.M., Latash M.L. (2003) Effects of age and gender on finger coordination in maximal contractions and submaximal force matching tasks. Journal of Applied Physiology **94**: 259-270.
- Zatsiorsky V.M., Gao F., Latash M.L. (2003) Prehension synergies: Effects of object geometry and prescribed torques. Experimental Brain Research **148**: 77-87.
- Sainburg R.L., Lateiner J.E., Latash M.L., Bagesteiro L.B. (2003) Effects of altering initial position on movement direction and extent. Journal of Neurophysiology **89**: 401-415.
- Latash M.L., Danion F., Bonnard M. (2003) Effects of transcranial magnetic stimulation on muscle activation patterns and joint kinematics within a two-joint motor synergy. Brain Research **961**: 229-242.
- Danion F., Schöner G., Latash M.L., Li S., Scholz J.P., Zatsiorsky V.M. (2003) A force mode hypothesis for finger interaction during multi-finger force production tasks. Biological Cybernetics **88**: 91-98.
- Latash M.L., Danion F., Scholz J.F., Zatsiorsky V.M., Schöner G. (2003) Approaches to analysis of handwriting as a task of coordinating a redundant motor system. Human Movement Science **22**: 153-171.

- Li S., Latash M.L., Zatsiorsky V.M. (2003) Finger interaction during multi-finger tasks involving finger addition and removal. Experimental Brain Research **150**: 230-236.
- Danion F., Latash M.L., Li S. (2003) Finger interactions studied with transcranial magnetic stimulation during multi-finger force production tasks. Clinical Neurophysiology **114**: 1445-1455.
- Latash M.L., Ferreira S.S., Wieczorek S.A., Duarte M. (2003) Movement sway: Changes in postural sway during voluntary shifts of the center of pressure. Experimental Brain Research **150**: 314-324.
140. Latash M.L., Yarrow K., Rothwell J.C. (2003) Changes in finger coordination and responses to single pulse TMS of motor cortex during practice of a multi-finger force production task Experimental Brain Research **151**: 60-71.
- Krishnamoorthy V., Goodman S.R., Latash M.L., Zatsiorsky V.M. (2003) Muscle synergies during shifts of the center of pressure by standing persons: Identification of muscle modes. Biological Cybernetics **89**: 152-161.
- Krishnamoorthy V., Latash M.L., Scholz J.P., Zatsiorsky V.M. (2003) Muscle synergies during shifts of the center of pressure by standing persons. Experimental Brain Research **152**: 281-292.
- Latash M.L., Gao F., Zatsiorsky V.M. (2003) Similarities and differences in finger interaction across typical and atypical subpopulations. Journal of Applied Biomechanics **19**: 264-270.
- Li S., Latash M.L., Yue G.H., Siemionow V., Sahgal V. (2003) The effects of stroke and age on finger interaction in multi-finger force production tasks. Clinical Neurophysiology **114**: 1646-1655.
- Shinohara M., Latash M.L., Zatsiorsky V.M. (2003) Age effects on force production by the intrinsic and extrinsic hand muscles and finger interaction during maximal contraction tasks. Journal of Applied Physiology **95**: 1361-1369.
- Zatsiorsky V.M., Gao F., Latash M.L. (2003) Finger force vectors in multi-finger prehension. Journal of Biomechanics **36**: 1745-1749.
- Michaelson P., Michaelson M., Jaric S., Latash M.L., Sjölander P., Djupsjöbacka M. (2003) Vertical posture and head stability in patients with chronic neck pain Journal of Rehabilitation Medicine **35**: 229-235.
- Shim J.K., Latash M.L., Zatsiorsky V.M. (2003) Prehension synergies: Trial-to-trial variability and hierarchical organization of stable performance. Experimental Brain Research **152**: 173-184.
- Scholz J.P., Kang N., Patterson D., Latash M.L. (2003) Uncontrolled manifold analysis of single trials during multi-finger force production by persons with and without Down syndrome. Experimental Brain Research **153**: 45-58.
150. Shim J.K., Latash M.L., Zatsiorsky V.M. (2003) The central nervous system needs time to organize task-specific covariation of finger forces. Neuroscience Letters **353**: 72-74.
- Goodman S.R., Latash M.L., Li S., Zatsiorsky V.M. (2003) Analysis of a network for finger interaction during two-hand multi-finger force production tasks. Journal of Applied Biomechanics **19**: 295-309.
- Gao F., Li S., Li Z.-M., Latash M.L., Zatsiorsky V.M. (2003) Matrix analyses of interaction among fingers in static force production tasks. Biological Cybernetics **89**: 407-414.

#### 2004

- Zatsiorsky V.M., Latash M.L., Gao F., Shim J.K. (2004) The principle of superposition in human prehension. Robotica **22**: 231-234.
- Goodman S.R., Latash M.L., Zatsiorsky V.M. (2004) Indices of non-linearity in finger force interaction. Biological Cybernetics **90**: 264-271.
- Zatsiorsky V.M., Latash M.L. (2004) Prehension synergies. Exercise and Sport Science Reviews **32**: 75-80.

- Shinohara M., Scholz J.P., Zatsiorsky V.M., Latash M.L. (2004) Finger interaction during accurate multi-finger force production tasks in young and elderly persons. Experimental Brain Research **156**: 282-292.
- Krishnamoorthy V., Latash M.L., Scholz J.P., Zatsiorsky V.M. (2004) Muscle modes during shifts of the center of pressure by standing persons: Effects of instability and additional support. Experimental Brain Research **157**: 18-31.
- Kang N., Shinohara M., Zatsiorsky V.M., Latash M.L. (2004) Learning multi-finger synergies: An uncontrolled manifold analysis. Experimental Brain Research **157**: 336-350.
- Shim J.K., Lay B., Zatsiorsky V.M., Latash M.L. (2004) Age-related changes in finger coordination in static prehension tasks. Journal of Applied Physiology **97**: 213-224.
160. Shim J.K., Latash M.L., Zatsiorsky V.M. (2004) Finger coordination during moment production on a mechanically fixed object. Experimental Brain Research **157**: 457-467.
- Li S., Latash M.L., Zatsiorsky V.M. (2004) Effects of motor imagery on finger force responses to transcranial magnetic stimulation. Cognitive Brain Research **20**: 273-280.
- Pataky T.C., Latash M.L., Zatsiorsky V.M. (2004) Tangential load sharing among fingers during prehension. Ergonomics **47**: 876-889.
- Slijper H.P., Latash M.L. (2004) The effects of muscle vibration on anticipatory postural adjustments. Brain Research **1015**: 57-72.
- Latash M.L., Shim J.K., Zatsiorsky V.M. (2004) Is there a timing synergy during multi-finger production of quick force pulses? Experimental Brain Research **159**: 65-71.
- Latash M.L., Shim J.K., Gao F., Zatsiorsky V.M. (2004) Rotational equilibrium during multi-digit pressing and prehension. Motor Control **8**: 392-404.
- Gao F., Latash M.L., Zatsiorsky V.M. (2004) Neural network modeling supports a theory on the hierarchical control of prehension. Neural Computing & Applications **13**: 352-359.
- Pataky T.C., Latash M.L., Zatsiorsky V.M. (2004) Prehension synergies during non-vertical grasping. I. Experimental observations. Biological Cybernetics **91**: 148-158.
- Pataky T.C., Latash M.L., Zatsiorsky V.M. (2004) Prehension synergies during non-vertical grasping. II. Modeling and optimization. Biological Cybernetics **91**: 231-242.
- Latash M.L., Feldman A.G. (2004) Computational ideas developed within the control theory have limited relevance to control processes in living systems. Behavioral and Brain Sciences **27**: 409.
170. Latash M.L., Jaric S., Scholz J.P., Zatsiorsky V.M. (2004) Motor synergies and their changes with practice. Journal of Human Kinetics **12**: 3-14.

## 2005

- Olafsdottir H., Zatsiorsky V.M., Latash M.L. (2005) Is the thumb a fifth finger? A study of digit interaction during force production tasks. Experimental Brain Research **160**: 203-213.
- Feldman A.G., Latash M.L. (2005) Testing hypotheses and the advancement of science: Recent attempts to falsify the equilibrium-point hypothesis. Experimental Brain Research **161**: 91-103.
- Gao F., Latash M.L., Zatsiorsky V.M. (2005) Control of finger force direction in the flexion-extension plane. Experimental Brain Research **161**: 307-315.
- Shim J.K., Latash M.L., Zatsiorsky V.M. (2005) Prehension synergies in three dimensions. Journal of Neurophysiology **93**: 766-776.
- Pataky T.C., Latash M.L., Zatsiorsky V.M. (2005) Viscoelastic response of the finger pad to incremental tangential displacements. Journal of Biomechanics **38**: 1441-1449.
- Olafsdottir H., Yoshida N., Zatsiorsky V.M., Latash M.L. (2005) Anticipatory covariation of finger forces during self-paced and reaction time force production. Neuroscience Letters **381**: 92-96.
- Shim J.K., Kim S.W., Oh S.J., Kang N., Zatsiorsky V.M., Latash M.L. (2005) Plastic changes in interhemispheric inhibition with practice of a two-hand force production task: A transcranial magnetic stimulation study. Neuroscience Letters **374**: 104-108.

- Zatsiorsky V.M., Gao F., Latash M.L. (2005) Motor control goes beyond physics: Differential effects of gravity and inertia on finger forces during manipulation of hand-held objects. Experimental Brain Research **162**: 300-308.
- Paulino R.G., Rezende dos Santos M.V., Latash M.L., Almeida G.L. (2005) Control of single-joint movements with a reversal. Journal of Electromyography and Kinesiology **15**: 406-417.
180. Domkin D., Laczko J., Djupsjöbacka M., Jaric S., Latash M.L. (2005) Joint angle variability in 3D bimanual pointing: uncontrolled manifold analysis. Experimental Brain Research **163**: 44-57.
- Goodman S.R., Shim J.K., Zatsiorsky V.M., Latash M.L. (2005) Motor variability within a multi-effector system: Experimental and analytical studies of multi-finger production of quick force pulses. Experimental Brain Research **163**: 75-85.
- Latash M.L., Shim J.K., Smilga A.V., Zatsiorsky V.M. (2005) A central back-coupling hypothesis on the organization of motor synergies: A physical metaphor and a neural model. Biological Cybernetics **92**: 186-191.
- Shim J.K., Latash M.L., Zatsiorsky V.M. (2005) Prehension synergies: trial-to-trial variability and principle of superposition during static prehension in three dimensions. Journal of Neurophysiology **93**: 3649-3658.
- Krishnamoorthy V., Latash M.L. (2005) Reversals of anticipatory postural adjustments during voluntary sway. Journal of Physiology **565**: 675-684.
- Shim J.K., Olafsdottir H., Zatsiorsky V.M., Latash M.L. (2005) The emergence and disappearance of multi-digit synergies during force production tasks. Experimental Brain Research **164**: 260-270.
- Gao F., Latash M.L., Zatsiorsky V.M. (2005) Internal forces during object manipulation. Experimental Brain Research **165**: 69-83.
- Latash M.L., Krishnamoorthy V., Scholz J.P., Zatsiorsky V.M. (2005) Postural synergies and their development. Neural Plasticity **12**: 119-130.
- Wang Y., Zatsiorsky V.M., Latash M.L. (2005) Muscle synergies involved in shifting center of pressure during making a first step. Experimental Brain Research **167**: 196-210.

## 2006

- Latash M.L. (2006) A New Book by Nikolai Bernstein: Contemporary studies in the physiology of the neural process. Motor Control **10**: 1-6.
190. Gao F., Latash M.L., Zatsiorsky V.M. (2006) Maintaining rotational equilibrium during object manipulation: Linear behavior of a highly non-linear system. Experimental Brain Research **169**: 519-531.
- Wang Y., Zatsiorsky V.M., Latash M.L. (2006) Muscle synergies in preparation to a step made under self-paced and reaction-time instructions. Clinical Neurophysiology **117**: 41-56.
- Mochizuki L., Duarte M., Amadio A.C., Zatsiorsky V.M., Latash M.L. (2006) Changes in postural sway and its fractions in conditions of postural instability. Journal of Applied Biomechanics **22**: 51-66.
- Freitas S.M.S.F., Duarte M., Latash M.L. (2006) Two kinematic synergies in voluntary whole-body movements during standing. Journal of Neurophysiology **95**: 636-645.
- Aoki T., Niu X., Latash M.L., Zatsiorsky V.M. (2006) Effects of friction at the digit-object interface on the digit forces in multi-finger prehension. Experimental Brain Research **172**: 425-438.
- Zatsiorsky V.M., Gao F., Latash M.L. (2006) Prehension stability: Experiments with expanding and contracting handle. Journal of Neurophysiology **95**: 2513-2529.
- Kim S.W., Shim J.K., Zatsiorsky V.M., Latash M.L. (2006) Anticipatory adjustments of multi-finger synergies in preparation for self-triggered perturbations. Experimental Brain Research **174**: 604-612.
- Wang Y., Asaka T., Zatsiorsky V.M., Latash M.L. (2006) Muscle synergies during voluntary body sway: Combining across-trials and within-a-trial analyses. Experimental Brain Research **174**: 679-693.

- Zhang W., Zatsiorsky V.M., Latash M.L. (2006) Accurate production of time-varying patterns of the moment of force in multi-finger tasks. Experimental Brain Research **175**: 68-82.
- Goodman S.R., Latash M.L. (2006) Feedforward control of a redundant motor system. Biological Cybernetics<sup>(20)</sup> **95**: 271-280.
200. Latash M.L., Anson J.G. (2006) Synergies in health and disease: Relations to adaptive changes in motor coordination. Physical Therapy **86**: 1151-1160.
- Shim J.K., Park J., Zatsiorsky V.M., Latash M.L. (2006) Adjustments of prehension synergies in response to self-triggered and experimenter-triggered load and torque perturbations. Experimental Brain Research **175**: 641-653.
- Shiratori T., Latash M.L. (2006) Postural preparation for sequential perturbations. Journal of Human Kinetics **15**: 3-24.
- Zhang W., Sainburg R.L., Zatsiorsky V.M., Latash M.L. (2006) Hand dominance and multi-finger synergies. Neuroscience Letters **409**: 200-204.

### 2007

- Yang J.-F., Scholz J.P., Latash M.L. (2007) The role of kinematic redundancy in adaptation of reaching. Experimental Brain Research **176**: 54-69.
- Olafsdottir H., Yoshida N., Zatsiorsky V.M., Latash M.L. (2007) Elderly show decreased adjustments of motor synergies in preparation to action. Clinical Biomechanics **22**: 44-51.
- Krishnamoorthy V., Scholz J.P., Latash M.L. (2007) The use of flexible arm muscle synergies to perform an isometric stabilization task. Clinical Neurophysiology **118**: 525-537.
- Zhang W., Zatsiorsky V.M., Latash M.L. (2007) Finger synergies during multi-finger cyclic production of moment of force. Experimental Brain Research **177**: 243-254.
- Gorniak S., Zatsiorsky V.M., Latash M.L. (2007) Hierarchies of synergies: An example of the two-hand, multi-finger tasks. Experimental Brain Research **179**: 167-180.
- Pataky T.C., Latash M.L., Zatsiorsky V.M. (2007) Finger interaction during maximal radial and ulnar deviation efforts: Experimental data and linear neural network modeling. Experimental Brain Research **179**: 301-312.
210. Olafsdottir H., Zhang W., Zatsiorsky V.M., Latash M.L. (2007) Age related changes in multi-finger synergies in accurate moment of force production tasks. Journal of Applied Physiology **102**: 1490-1501.
- Danna-Dos-Santos A., Slomka K., Zatsiorsky V.M., Latash M.L. (2007) Muscle modes and synergies during voluntary body sway. Experimental Brain Research **179**: 533-550.
- Duarte M., Latash M.L. (2007) Effects of postural task requirements on the speed-accuracy trade-off. Experimental Brain Research **180**: 457-467.
- Latash M.L., Scholz J.P., Schöner G. (2007) Toward a new theory of motor synergies. Motor Control **11**: 276-308.
- Wang Y., Shapkova E.Yu., Siwasakunrat S., Zatsiorsky V.M., Latash M.L. (2007) Stepping from a narrow support. Journal of Electromyography and Kinesiology **17**: 462-472.
- Danna-Dos-Santos A., Degani A.M., Latash M.L. (2007) Anticipatory control of head posture. Clinical Neurophysiology **118**: 1802-1814.
- Niu X., Latash M.L., Zatsiorsky V.M. (2007) Prehension synergies in the grasps with complex friction patterns: local vs. synergic effects and the template control. Journal of Neurophysiology **98**: 16-28.
- Shim J.K., Huang J., Latash M.L., Zatsiorsky V.M. (2007) Multi-digit maximal voluntary torque production on a circular object. Ergonomics **50**: 660-675.
- Aoki T., Latash M.L., Zatsiorsky V.M. (2007) Adjustments to local friction in multi-finger prehension. Journal of Motor Behavior **39**: 276-290.
- Degani A., Danna-Dos-Santos A., Latash M.L. (2007) Postural preparation to making a step: Is there a “motor program” for postural preparation? Journal of Applied Biomechanics **23**: 261-274.

220. Gorniak S., Zatsiorsky V.M., Latash M.L. (2007) Emerging and disappearing synergies in a hierarchically controlled system. Experimental Brain Research **183**: 259-270.
- Latash M.L. (2007) Learning motor synergies by persons with Down syndrome. Journal of Intellectual Disability Research **51**: 962-971.
- Gao F., Latash M.L., Zatsiorsky V.M. (2007) Similar motion of a handheld object may trigger non-similar grip force adjustments. Journal of Hand Therapy **20**: 300-308.
- Pataky T.C., Savescu A.V., Latash M.L., Zatsiorsky V.M. (2007) A device for testing the intrinsic muscles of the hand. Journal of Hand Therapy **20**: 345-350.

### 2008

- Kim S.W., Shim J.K., Zatsiorsky V.M., Latash M.L. (2008) Finger interdependence: Linking the kinetic and kinematic variables. Human Movement Science **27**: 408-422.
- Latash M.L. (2008) Evolution of motor control: From reflexes and motor programs to the equilibrium-point hypothesis. Journal of Human Kinetics **19**: 3-24.
- Savescu A.V., Latash M.L., Zatsiorsky V.M. (2008) A technique to determine friction at the fingertips. Journal of Applied Biomechanics **24**: 43-50.
- Asaka T., Wang Y., Fukushima J., Latash M.L. (2008) Learning effects on muscle modes and multi-mode synergies. Experimental Brain Research **184**: 323-338.
- Zhang W., Scholz J.P., Zatsiorsky V.M., Latash M.L. (2008) What do synergies do? Effects of secondary constraints on multi-digit synergies in accurate force-production tasks. Journal of Neurophysiology **99**: 500-513.
- Olafsdottir H., Kim S.W., Zatsiorsky V.M., Latash M.L. (2008) Anticipatory synergy adjustments in preparation to self-triggered perturbations in elderly individuals. Journal of Applied Biomechanics **24**: 175-179.
230. Latash M.L. (2008) Motor control: The heart of kinesiology. Quest **60**: 19-30.
- Gorniak S.L., Duarte M., Latash M.L. (2008) Do synergies improve accuracy? A study of speed-accuracy trade-offs during finger force production. Motor Control **12**: 151-172.
- Robert T., Zatsiorsky V.M., Latash M.L. (2008) Multi-muscle synergies in an unusual postural task: Quick shear force production. Experimental Brain Research **187**: 237-253.
- Danna-Dos-Santos A., Degani A.M., Zatsiorsky V.M., Latash M.L. (2008) Is voluntary control of natural postural sway possible? Journal of Motor Behavior **40**: 179-185.
- Robert T., Latash M.L. (2008) Time evolution of the organization of multi-muscle postural responses to sudden changes in the external force applied at the trunk level. Neuroscience Letters **438**: 238-241.
- Shapkova E.Yu., Shapkova A.L., Goodman S.R., Zatsiorsky V.M., Latash M.L. (2008) Do synergies decrease force variability? A study of single-finger and multi-finger force production. Experimental Brain Research **188**: 411-425.
- Danna-Dos-Santos A., Degani A.M., Latash M.L. (2008) Flexible muscle modes and synergies in challenging whole-body tasks. Experimental Brain Research **189**: 171-187.
- Budgeon M.K., Latash M.L., Zatsiorsky V.M. (2008) Digit force adjustments during finger addition/removal in multi-finger prehension. Experimental Brain Research **189**: 345-359.
- Niu X., Zatsiorsky V.M., Latash M.L. (2008) Stability of the multi-finger prehension synergy studied with transcranial magnetic stimulation. Experimental Brain Research **190**: 225-238.
- Latash M.L., Gorniak S., Zatsiorsky, V.M. (2008) Hierarchies of synergies in human movements. Kinesiology **40**: 29-38.
240. Zatsiorsky V.M., Latash M.L. (2008) Multi-finger prehension: An overview. Journal of Motor Behavior **40**: 446-476.
- Olafsdottir H.B., Zatsiorsky V.M., Latash M.L. (2008) The effects of strength training on finger strength and hand dexterity in healthy elderly individuals. Journal of Applied Physiology **105**: 1166-1178.

Pataky T.C., Latash M.L., Zatsiorsky V.M. (2008) Multi-finger ab- and adduction strength and coordination. Journal of Hand Therapy **21**: 377-385.

### **2009**

Martin J., Latash M.L., Zatsiorsky V.M. (2009) Interaction of finger enslaving and error compensation in multiple finger force production. Experimental Brain Research **192**: 293-298.

Zhang W., Olafsdottir H.B., Zatsiorsky V.M., Latash M.L. (2009) Mechanical analysis and hierarchies of multi-digit synergies during accurate object rotation. Motor Control **13**: 251-279.

Danna-Dos-Santos A., Shapkova E.Yu., Shapkova A.L., Degani A.M., Latash M.L. (2009) Postural control during upper body locomotor-like movements: Similar synergies built on dissimilar muscle modes. Experimental Brain Research **193**: 565-579.

Gorniak S.L., Zatsiorsky V.M., Latash M.L. (2009) Hierarchical control of static prehension: I. Biomechanics. Experimental Brain Research **193**: 615-631.

Gorniak S.L., Zatsiorsky V.M., Latash M.L. (2009) Hierarchical control of static prehension: II. Multi-digit synergies. Experimental Brain Research **194**: 1-15.

Niu X., Latash M.L., Zatsiorsky V.M. (2009) Effects of grasping force magnitude on the coordination of digit forces in multi-finger prehension. Experimental Brain Research **194**: 115-129.

de Freitas P.B., Freitas S.M.S.F., Duarte M., Latash M.L., Zatsiorsky V.M. (2009) Effects of joint immobilization on standing balance. Human Movement Science **28**: 515-528.

250. Gorniak S.L., Feldman A.G., Latash M.L. (2009) Joint coordination during bimanual transport of real and imaginary objects. Neuroscience Letters **456**: 80-84.

Friedman J., Latash M.L., Zatsiorsky V.M. (2009) Prehension synergies: A study of digit force adjustments to the continuously varied load force exerted on a partially constrained hand-held object. Experimental Brain Research **197**: 1-13.

Friedman J., SKM V., Zatsiorsky V.M., Latash M.L. (2009) The sources of two components of variance: An example of multifinger cyclic force production tasks at different frequencies. Experimental Brain Research **196**: 263-277

Lam M.Y., Hodges N.J., Virji-Babul N., Latash M.L. (2009) Evidence for slowing as a function of index of difficulty in young adults with Down syndrome. American Journal of Intellectual and Developmental Disabilities **114**: 411-426.

Juras G., Slomka K., Latash M.L. (2009) Violations of Fitts' law in a ballistic task. Journal of Motor Behavior **41**: 525-528.

### **2010**

Gera G., Freitas S.M.S.F., Latash M.L., Monahan K., Schöner G., Scholz J.P. (2010) Motor abundance contributes to resolving multiple kinematic task constraints. Motor Control **14**: 83-115.

Latash M.L., Friedman J., Kim S.W., Feldman A.G., Zatsiorsky V.M. (2010) Prehension synergies and control with referent hand configurations. Experimental Brain Research **202**: 213-229.

Klous M., Danna-dos-Santos A., Latash M.L. (2010) Multi-muscle synergies in a dual postural task: Evidence for the principle of superposition. Experimental Brain Research **202**: 457-471.

Gorniak S.L., Zatsiorsky V.M., Latash M.L. (2010) Manipulation of a fragile object. Experimental Brain Research **202**: 413-430.

Freitas S.M.S.F., Scholz J.P., Latash M.L. (2010) Analyses of joint variance related to voluntary whole-body movements performed in standing. Journal of Neuroscience Methods **188**: 89-96.

260. Degani A.M., Danna-Dos-Santos A., Robert T., Latash M.L. (2010) Kinematic synergies during saccades involving whole-body rotation: A study based on the uncontrolled manifold hypothesis. Human Movement Science **29**: 243-258.
- Kapur S., Friedman J., Zatsiorsky V.M., Latash M.L. (2010) Finger interaction in a three-dimensional pressing task. Experimental Brain Research **203**: 101-118.
- Latash M.L., Mikaelian I.L. (2010) How long does it take to describe what one sees? The first step using picture description tasks. Human Movement Science **29**: 369-385.
- Singh T., SKM V., Zatsiorsky V.M., Latash M.L. (2010) Fatigue and motor redundancy: Adaptive increase in force variance in multi-finger tasks. Journal of Neurophysiology **103**: 2990-3000.
- Latash M.L. (2010) Motor control: In search of physics of the living systems. Journal of Human Kinetics **24**: 7-18.
- Terekhov A.V., Pesin Y.B., Niu X., Latash M.L., Zatsiorsky V.M. (2010) An analytical approach to the problem of inverse optimization: An application to human prehension. Journal of Mathematical Biology **61**: 423-453.
- Latash M.L. (2010) Motor synergies and the equilibrium-point hypothesis. Motor Control **14**: 294-322.
- Latash M.L. (2010) Two archetypes of motor control research. Motor Control **14**: e41-e53.
- SKM V., Zatsiorsky V.M., Latash M.L. (2010) Variance components in discrete force production tasks. Experimental Brain Research **205**: 335-349.
- Latash M.L. (2010) Stages in learning motor synergies: A view based on the equilibrium-point hypothesis. Human Movement Science **29**: 642-654.
270. Latash M.L., Levin M.F., Scholz J.P., Schöner G. (2010) Motor control theories and their applications. Medicina **46**: 382-392.
- Singh T., SKM V., Zatsiorsky V.M., Latash M.L. (2010) Adaptive increase in force variance during fatigue in tasks with low redundancy. Neuroscience Letters **485**: 204-207.
- Park J., Zatsiorsky V.M., Latash M.L. (2010) Optimality vs. variability: An example of multi-finger redundant tasks. Experimental Brain Research **207**: 119-132.
- Kapur S., Zatsiorsky V.M., Latash M.L. (2010) Age-related changes in the control of finger force vectors. Journal of Applied Physiology **109**: 1827-1841.

## 2011

- Martin J.R., Zatsiorsky V.M., Latash M.L. (2011) Multi-finger interaction during involuntary and voluntary single finger force changes. Experimental Brain Research **208**: 423-435.
- Latash M.L., Mikaelian I.L. (2011) A logarithmic speed-difficulty trade-off in speech production. Motor Control **15**: 52-67.
- Sun Y., Zatsiorsky V.M., Latash M.L. (2011) Prehension of half-full and half-empty glasses: Time and history effects on multi-digit coordination. Experimental Brain Research **209**: 571-585.
- Martin J.R., Budgeon M.K., Zatsiorsky V.M., Latash M.L. (2011) Stabilization of the total force in multi-finger pressing tasks studied with the 'inverse piano' technique. Human Movement Science **30**: 446-458.
- Martin J.R., Latash M.L., Zatsiorsky V.M. (2011) Coordination of contact forces during multi-finger static prehension. Journal of Applied Biomechanics **27**: 87-98.
- Park J., Zatsiorsky V.M., Latash M.L. (2011) Finger coordination under artificial changes in finger strength feedback: A study using analytical inverse optimization. Journal of Motor Behavior **43**: 229-235.
280. Klous M., Mikulic P., Latash M.L. (2011) Two aspects of feed-forward postural control: Anticipatory postural adjustments and anticipatory synergy adjustments. Journal of Neurophysiology **105**: 2275-2288.

- Latash M.L., Sun Y., Latash E.M., Mikaelian I.L. (2011) Speed-difficulty trade-off in speech: Chinese vs. English. Experimental Brain Research **211**: 193-205.
- Shapkova E.Y., Terekhov A.V., Latash M.L. (2011) Arm motion coupling during locomotion-like actions: An experimental study and a dynamic model. Motor Control **15**: 206-220.
- Park J., Sun Y., Zatsiorsky V.M., Latash M.L. (2011) Age-related changes in optimality and motor variability: An example of multi-finger redundant tasks. Experimental Brain Research **212**: 1-18.
- Krishnan V., Aruin A.S., Latash M.L. (2011) Two stages and three components of postural preparation to action. Experimental Brain Research **212**: 47-63.
- Gorniak S.L., Zatsiorsky V.M., Latash M.L. (2011) Manipulation of a fragile object by elderly individuals. Experimental Brain Research **212**: 505-516.
- Mattos D., Latash M.L., Park E., Kuhl J., Scholz J.P. (2011) Unpredictable elbow joint perturbation during reaching results in multijoint motor equivalence. Journal of Neurophysiology **106**: 1424-1436.
- Slota G.P., Latash M.L., Zatsiorsky V.M. (2011) Grip forces during object manipulation: experiment, mathematical model, and validation. Experimental Brain Research **213**: 125-139.
- Sun Y., Park J., Zatsiorsky V.M., Latash M.L. (2011) Prehension synergies during smooth changes of the external torque. Experimental Brain Research <sup>(85)</sup> **213**: 493-506.
- Singh T., Latash M.L. (2011) Effects of muscle fatigue on multi-muscle synergies. Experimental Brain Research **214**: 335-350.
290. Friedman J., Latash M.L., Zatsiorsky V.M. (2011) Directional variability of the isometric force vector produced by the hand in multi-joint planar tasks. Journal of Motor Behavior **43**: 451-463.

## 2012

- Niu X., Terekhov A.V., Latash M.L., Zatsiorsky V.M. (2012) Reconstruction of the unknown optimization cost functions from experimental recordings during static multi-finger prehension. Motor Control (in press).
- SKM V., Zhang W., Zatsiorsky V.M., Latash M.L. (2012) Age effects on rotational hand action. Human Movement Science (in press).
- Wu Y.-H., Zatsiorsky V.M., Latash M.L. (2012) Static prehension of a horizontally oriented object in three dimensions. Experimental Brain Research **216**: 249-261.
- Klous M., Mikulic P., Latash M.L. (2012) Early postural adjustments in preparation to whole-body voluntary sway. Journal of Electromyography and Kinesiology **22**: 110-116.
- Slota G.P., Latash M.L., Zatsiorsky V.M. (2012) Tangential finger forces utilize mechanical advantage during static grasping. Journal of Applied Biomechanics (in press).
- Pataky T.C., Slota G.P., Latash M.L., Zatsiorsky V.M. Radial force distribution changes associated with tangential force production in cylindrical grasping, and the importance of anatomical registration. Journal of Biomechanics **45**: 218-224.
- Park J., Singh T., Zatsiorsky V.M., Latash M.L. (2012) Optimality vs. variability: Effect of fatigue in multi-finger redundant tasks. Experimental Brain Research **216**: 591-607.
- Krishnan V., Latash M.L., Aruin A.S. (2011) Early and late components of feed-forward postural adjustments to predictable perturbations. Clinical Neurophysiology (in press).
- Martin J.R., Latash M.L., Zatsiorsky V.M. (2012) Effects of the index finger position and force production on the flexor digitorum superficialis moment arms at the metacarpophalangeal joints – a magnetic resonance imaging study. Clinical Biomechanics (in press).
300. Latash M.L. (2012) The bliss (not the problem) of motor abundance (not redundancy). Experimental Brain Research (in press).
- Niu X., Latash M.L., Zatsiorsky V.M. (2012) Reproducibility and variability of the cost functions reconstructed from experimental recordings in multi-finger prehension. Journal of Motor Behavior (in press).

## BOOKS AND CHAPTERS

- Gurfinkel V.S. & Latash M.L. (1977) Tonic vibration reflex and effects of reversal. In: Frolov K.V. (ed.) Influence of Vibration on the Human Body, pp. 33-38, Moscow: Nauka. (in Russian).
- Gurfinkel V.S. & Latash M.L. (1980) Reversals of muscle reflexes. In: Ovsyannikov A. (ed.) Mechanisms of Motor Control, pp. 19-29, Moscow: Nauka. (in Russian).
- Latash M.L. (1989) (Editor) Motor Control in Down Syndrome. Rush-Presbyterian St. Luke's Medical Center, Chicago, IL.
- Gottlieb G.L., Corcos D.M., Agarwal G.C., & Latash M.L. (1990) Principles underlying single-joint movement strategies. In: Multiple Muscle Systems: Biomechanics and Movement Organization. J.M.Winters & S.L.-Y.Woo (Eds.), pp. 236-250, New York e.a.:Springer-Verlag.
- Latash M.L. & Gutman S.R. (1993) Variability of fast single-joint movements and the equilibrium-point hypothesis. In: Variability in Motor Control. K.M.Newell & D.M.Corcoc (Eds.), pp. 157-182, Human Kinetics: Urbana, IL
- Latash M.L. (1993) Control of Human Movement. Human Kinetics: Urbana, IL.
- Latash M.L. (1994) (Editor) Motor Control in Down Syndrome - II. Rush-Presbyterian St. Luke's Medical Center, Chicago, IL.
- Latash M.L. & Turvey M.T. (Editors) (1996) Dexterity and Its Development. Erlbaum Publ.: Mahwah, NJ. (Japanese translation 2003).
- Latash M.L. (1996) How does our brain make its choices? In: Latash M.L. & Turvey M.T. (Eds.) Dexterity and Its Development, pp. 277-304, Erlbaum Publ.: Mahwah, NJ
10. Latash M.L. (1996) Use of a smooth perturbation technique to reconstruct instruction-dependent virtual trajectories and joint stiffness patterns. In: Stuart D.G. (Ed.) Motor Control VII, p. 237-240, Motor Control Press: Tucson, AZ
- Latash M.L. (1996) Adaptive motor patterns in health and pathology. In: Gantchev G.N., Gurfinkel V.S., Stuart D., Wiesendanger M. & Mori S. (Eds.) Motor Control VIII, p. 275-278, Academic Publ. House: Sofia.
- Latash M.L. (Editor) (1998) Progress in Motor Control. vol. 1: Bernstein's Traditions in Movement Studies. Human Kinetics: Urbana, IL.
- Latash M.L. (1998) Control of multi-joint reaching movement: The elastic membrane metaphor. In: Latash M.L. (Ed.) Progress in Motor Control: vol. 1: Bernstein's Traditions in Movement Studies. pp. 315-328, Human Kinetics: Urbana, IL.
- Latash M.L. (1998) Neurophysiological Basis of Movement. Human Kinetics: Urbana, IL.
- Latash M.L. (1999) On the evolution of the notion of synergy. In: Gantchev G.N., Mori S., Massion J. (Eds.) Motor Control Today and Tomorrow, p. 181-196, Academic Publ. House "Prof. M. Drinov": Sofia.
- Latash M.L. (1999) Equilibrium-point hypothesis: Its past, present, and future. In: Gantchev N., Gantchev G.N. (Eds.) From Basic Motor Control to Functional Recovery, p. 387-391, Academic Publ. House "Prof. M. Drinov": Sofia.
- Danion F., Latash M.L., Zatsiorsky V.M. (1999) Effects of single- and multi-finger prolonged exercise on multi-finger coordination. In: Gantchev N., Gantchev G.N. (Eds.) From Basic Motor Control to Functional Recovery, p. 353-357, Academic Publ. House "Prof. M. Drinov": Sofia.
- Latash M.L. (2000) Motor coordination in Down syndrome: The role of adaptive changes. In: Weeks D.J., Chua R., Elliott D. (Eds) Perceptual-Motor Behavior in Down Syndrome, p. 199-223, Human Kinetics: Urbana, IL.
- Latash M.L. (2000) Equilibrium-point hypothesis and internal inverse models. In: Raczek J., Waskiewicz Z., Juras G. (Eds.) Current Research in Motor Control, p. 44-49, Polish Scientific Physical Education Association: Katowice, Poland.

20. Latash M.L., Zatsiorsky V.M. (Editors) (2001) Classics in Movement Science. Human Kinetics: Urbana, IL.
- Danion F., Li S., Latash M.L. (2001) Changes in fingertip forces in response to magnetic cortical stimulation during force production tasks. In: Gantchev N. (Ed.) From Basic Motor Control to Functional Recovery - II, p. 229-238, Academic Publ. House "Prof. M. Drinov": Sofia.
- Walmsley A., Williams L., Rosenbaum D., Latash M.L. (2001) Equilibrium-point hypothesis and equifinality of voluntary movements under transient perturbations. In: Gantchev N. (Ed.) From Basic Motor Control to Functional Recovery - II, p. 309-316, Academic Publ. House "Prof. M. Drinov": Sofia.
- Latash M.L. (2002) Bases Neurophysiologiques du Movement. DeBoeck Universite Press: Paris, France (in French).
- Latash M.L. (Editor) (2002) Progress in Motor Control. vol. 2: Structure-Function Relations in Voluntary Movement. Human Kinetics: Urbana, IL.
- Gelfand I.M., Latash M.L. (2002) On the problem of adequate language in biology. In: Latash M.L. (Ed.) Progress in Motor Control. vol. 2: Structure-Function Relations in Voluntary Movement. p. 209-228, Human Kinetics: Urbana, IL.
- Latash M.L. (2002) Neurophysiological Basis of Movement. Taishukan-shoten: Tokyo (in Japanese).
- Latash M.L., Levin M.F. (Editors) (2003) Progress in Motor Control. vol. 3: Effects of Age, Disorder, and Rehabilitation. Human Kinetics: Urbana, IL.
- Latash M.L., Danion F., Scholz J.F., Schöner G (2003) Coordination of multi-element motor systems based on motor abundance. In: Latash M.L., Levin M.F. (Eds.) Progress in Motor Control vol.3: Effects of Age, Disorder, and Rehabilitation, p. 97-124, Human Kinetics: Urbana, IL.
- Zatsiorsky V.M., Latash M.L., Danion F., Gao F., Li Z.M., Gregory R.W., Li S. (2004) Inter-finger connection matrices. In: Bubak M., van Albada G.D., Sloot P.M.A., Dongarra J.J. (Eds.) Computational Science - ICCS 2004, p. 1056-1064, Berlin: Springer.
30. Latash M.L., Jaric S., Scholz J.P., Zatsiorsky V.M. (2004) Motor synergies and their changes with practice. In: Waskiewicz Z., Juras G., Raczek J. Current Research in Motor Control – II: Theories, Implementations and Research Perspectives in Motor Control, p. 9-18, AWF: Katowice, Poland.
- Latash M.L., Olafsdottir H., Shim J.K., Zatsiorsky V.M. (2005) Synergies that stabilize and destabilize action. In: Gantchev N. (Ed.) From Basic Motor Control to Functional Recovery – IV, p. 19-25, Marin Drinov Academic Publishing House: Sofia, Bulgaria.
- Shapkova E.Yu., Latash M.L. (2005) The organization of central spinal generators in humans. In: Gantchev N. (Ed.) From Basic Motor Control to Functional Recovery – IV, p. 141-149, Marin Drinov Academic Publishing House: Sofia, Bulgaria.
- Latash M.L., Lestienne F. (Editors) (2006) Motor Control and Learning. Springer: NY.
- Latash M.L., Shim J.K., Shinohara M., Zatsiorsky V.M. (2006) Changes in finger coordination and hand function with advanced age. In: Latash M.L., Lestienne F. (Eds) Motor Control and Learning, pp. 141-159, Springer: NY.
- Latash M.L., Zatsiorsky V.M. (2006) Principle of superposition in human prehension. In: Kawamura S., Swinin M. (Eds.) Advances in Robot Control: From Everyday Physics to Human-Like Movements, pp. 249-261, Springer: New York.
- Latash M.L. (2008) Neurophysiological Basis of Movement. Second Edition. Human Kinetics: Urbana, IL.
- Latash M.L. (2008) Synergy. Oxford University Press: New York.
- Zatsiorsky V.M., Latash M.L. (2008) Human hand as a parallel manipulator. In: Wu H. (Ed.) Parallel Manipulators: Towards New Applications, p. 449-466, I-Tech Education and Publishing: Vienna, Austria.

- Latash M.L. (2008) Two aspects of motor learning: Learning movements and learning synergies. In: Guadagnoli M (Ed.) Human Learning: Biology, Brain and Neuroscience, Advances in Psychology, v. 139, pp. 155-166, Elsevier: NY.
40. Latash M.L., Niu X., Zatsiorsky VM (2008) Multi-finger prehension synergy: Exploration with transcranial magnetic stimulation. In: Ferre M. (Ed.) Haptics: Perception, Devices and Scenarios, p. 389-394, Springer: Berlin.
- Latash M.L., Hadders-Algra M. (2008) What is posture and how is it controlled? In: Hadders-Algra M., Carlberg E.B. (Eds.) Posture: A Key Issue in Developmental Disorders, pp. 3-21, MacKeith Press: London, UK.
- Virji-Babul N., Latash M.L. (2008) Postural control in children with Down syndrome. In: Hadders-Algra M., Carlberg E.B. (Eds.) Posture: A Key Issue in Developmental Disorders, pp. 131-147, MacKeith Press: London, UK.
- Latash M.L. (2008) Coordination. In: Binder M.D., Hirokawa N., Windhorst U. (Eds) Encyclopedia of Neuroscience, article 1269, Springer: NY.
- Latash M.L., Zatsiorsky V.M. (2009) Multi-finger prehension: Control of a redundant motor system. In: Sternad D. (Ed.) Progress in Motor Control: A Multidisciplinary Perspective, Advances in Experimental Medicine and Biology, v. 629, p. 597-618, Springer: New York.
- Zatsiorsky V.M., Latash M.L. (2009) Digit forces in multi-digit grasps. In: Nowak D.A., Hermsdörfer J. (Eds.) Sensorimotor Control of Grasping: Physiology and Pathophysiology, p. 33-51, Cambridge University Press: Cambridge, UK.
- Danion F., Latash M.L. (Editors) (2010) Motor Control: Theories, Experiments, and Applications. Oxford University Press: New York, NY.
- Latash M.L. (2010) Anticipatory control of voluntary action: Merging the ideas of equilibrium-point control and synergic control. In: Danion F., Latash M.L. (Eds) Motor Control: Theories, Experiments, and Applications, p. 3-29, Oxford University Press: New York, NY.
- Latash M.L. (2012) Fundamentals of Motor Control. Elsevier: New York, NY (in press).

**ABSTRACTS, EDITORIALS, PROCEEDINGS, PUBLISHED REVIEWS, AND  
PRESENTATIONS (\* - invited)**

**1975-1987**

- Gottlieb G.L., Corcos D.M., Agarwal G.C. & Latash M.L. (1987) Strategies of movements: Interpreting the EMG. 17th Annual Meeting of the Society for Neuroscience, New Orleans, 199.11.
- Gurfinkel V.S. & Latash M.L. (1978) On possible role of reversal mechanisms in movement coordination during locomotion. Proceedings of the III-d All-Union Conference on Biological and Medical Cybernetics. v. 1, pp. 272-275, Moscow, Sukhumi.
- Gurfinkel V.S., Latash M.L., Lipshits M.I. & Popov K.E. (1978) Bilateral vibration stimulation for investigation of the control of muscle activity. Proceedings of the III-d All-Union Conference on Biological and Medical Cybernetics. v. 1, pp. 276-279, Moscow, Sukhumi.
- Latash M.L. (1975) Adaptation of the tonic vibration reflex to changes in body position. Conference on Adaptive Systems of Communication. Abstracts, p. 14. Novosibirsk.

**1988**

- Hansen G., Kravitz H.M., Corcos D.M., Latash M.L., Penn R.D. & Cartwright R.D. (1988) Intrathecal baclofen infusion for nocturnal leg muscle spasticity. Sleep Research, 17:278.
- Latash M.L., Penn R.D., Corcos D.M. & Gottlieb G.L. (1988) Neurophysiological study of the short-term effects of intrathecal baclofen in spasticity. 18th Annual Meeting of the Society for Neuroscience, Toronto, Canada, 141.14.

**1989**

- Corcos D.M., Gottlieb G.L., Agarwal G.C., & Latash M.L. (1989) Organizing principles for single joint movements: The speed-insensitive strategy as default. 19th Annual Meeting of the Society for Neuroscience, Phoenix, AZ, 243.13.
- Latash M.L. (1989) Implications of the equilibrium-point hypothesis for the variability of aimed hand movements. In: C.J.Worringham (Ed.) "Spatial, Temporal and Electromyographical Variability in Human Motor Control", p. 16-17, Ann Arbor, MI.
- \*Latash M.L. (1989) The equilibrium-point hypothesis and movement dynamics. Emory University, Atlanta, GA.
10. Latash M.L. (1989) Chairman of the Organizing Committee of the First Conference on Motor Control in Down Syndrome, Chicago, IL.
- Latash M.L., Corcos D.M. & Gottlieb G.L. (1989) Kinematic and electromyographic characteristics of single-joint elbow movements in Down syndrome subjects. In: M.L.Latash (Ed.) Motor Control in Down Syndrome. pp. 22-29. Rush-Presbyterian St. Luke's Medical Center, Chicago, IL.
- Latash M.L. & Gottlieb G.L. (1989) Reconstruction of shifting compliant characteristics during slow movements. 19th Annual Meeting of the Society for Neuroscience, Phoenix, AZ, 25.17.
- Latash M.L., Gottlieb G.L., & Corcos D.M. (1989) EMG patterns of single-joint movements: A model and observations in healthy and Down syndrome subjects. Midwest Motor-Sensory Systems Symposium, Wisconsin Dells, WI.
- Latash M.L., Pendragon A., Dulac L. (1989) Analysis of intertalk intervals of the round-table discussion. In: M.L.Latash (Ed.) Motor Control in Down Syndrome. pp. 108-119. Rush-Presbyterian St. Luke's Medical Center, Chicago, IL.

**1990**

- \*Latash M.L., Corcos D.M., & Gottlieb G.L. (1990) Motor control in Down syndrome: Intact control mechanisms lacking appropriate modulation. APTA Combined Sections Meeting, New Orleans, LA.
- Latash M.L. & Gottlieb G.L. (1990) Reconstruction of joint compliant characteristics during fast single-joint movements. First World Congress of Biomechanics. Abstracts, p. 107, San Diego, CA.

Latash M.L. & Gottlieb G.L. (1990) Virtual trajectories of single-joint movements show two basic strategies. 20th Annual Meeting of the Society for Neuroscience Abstracts, **20**: 152, St. Louis, MO.

Latash M.L., Penn R.D., Corcos D.M. & Gottlieb G.L. (1990) Effects of intrathecal baclofen on voluntary motor control in dystonia and spasticity. Abstracts of the First International Congress of Movement Disorders. Movement Disorders, vol. 5, Supplement 1, p.76.

### 1991

Almeida G.L., Corcos D.M., Latash M.L. (1991) Effects of practice of fast voluntary movements in Down Syndrome individuals. 21<sup>st</sup> Annual Meeting of the Society for Neuroscience Abstracts, **21**: 1027, New Orleans

20. Campbell S., Penn R., Corcos D., Magolan J., Cromwell R., Latash M., Lee K., Almeida G. (1991) Effects of baclofen on spasticity in cerebral palsy: Results of one case. University of Illinois at Chicago, IL

Gutman S.R., Gottlieb G.L., Latash M.L. (1991) Temporal patterns of variability in trajectory, velocity, and acceleration of movement. 21<sup>st</sup> Annual Meeting of the Society for Neuroscience Abstracts, **21**: 938, New Orleans

\*Latash M.L. (1991) Voluntary motor control in spastic paresis. Case Western Reserve University, Cleveland, OH, June 14.

\*Latash M.L. (1991) Experimental explorations of the equilibrium-point hypothesis. University of Connecticut, Storrs, CO, June 25.

\*Latash M.L. (1991) Changes in motor control after intrathecal baclofen. The Workshop on Intrathecal Baclofen for Severe Spasticity, Rush Medical Center, Chicago, July 25; September 26.

Latash M.L. (1991) Virtual trajectories of single-joint oscillatory movements. PawReview Perceiving-Acting Workshop in Ecological Psychology, **6**: 12-15.

Latash M.L. & Gutman S.R. (1991) Variability of fast single-joint movements and the equilibrium-point hypothesis. Abstracts of the Conference on "Variability and Motor Control", pp. 4-5, April 19-21, 1991, Chicago, IL

### 1992

\*Latash M.L. Experimental reconstruction of virtual trajectories during voluntary movements. Katholieke Universiteit, June 18, Nijmegen, The Netherlands

\*Latash M.L. Virtual trajectories of single-joint movements. Ruhr-Universitat, June 22, Bochum, Germany

Latash M.L., Neyman I. & Nicholas J.J. (1992) Changes in joint compliance with age and Parkinson's disease. Second International Congress of Movement Disorders. June 24-26, Munich.

30. \*Nichols T.R., Burgess P.R., Latash M. & Meek S. Fundamental models of voluntary movement: Theory and practice. Specialized Panel of the Second Spring Conference "Neural Control of Movement", April 21-26, Marco Island, Florida.

Almeida G.L., Latash M.L., Penn R.D., Corcos D.M. & Gottlieb G.L. Selective action of intrathecal baclofen in spastic paresis. 22<sup>d</sup> Annual Meeting of the Society for Neuroscience Abstracts, **18**: 1593, Anaheim, October 25-30.

Jaric S., Ilic D.B., Corcos D.M., Gottlieb G.L. & Latash M.L. Effects of practice on reproducing movement distance and location. 22<sup>d</sup> Annual Meeting of the Society for Neuroscience Abstracts, **18**: 517, Anaheim, October 25-30.

Latash M.L. & Latash L.P. The amazing fate of Nikolai Bernstein and his books. 22<sup>d</sup> Annual Meeting of the Society for Neuroscience Abstracts, **18**: 181, Anaheim, October 25-30.

### 1993

Latash M.L. Central and peripheral factors in the EMG patterns during elbow movements against unexpectedly changed inertial load. "Neural Control of Movement", Third Annual Meeting, April 13-17, Marco Island, FL.

Latash M.L., Corcos D.M., Almeida G.L. Pre-programming in Down syndrome. Symposium "Mechanisms of Motor Control in Atypical Development. The Case of Down Syndrome", 1993 NASPSA Abstracts, Journal of Sport and Exercise Psychology, v. 15, Suppl., S50.

Corcos D.M., Latash M.L., Almeida G.L. Practice, transfer effects and motor performance in Down syndrome. Symposium "Mechanisms of Motor Control in Atypical Development. The Case of Down Syndrome", 1993 NASPSA Abstracts, Journal of Sport and Exercise Psychology, v. 15, Suppl., S17.

Latash M.L. Virtual trajectories and joint stiffness reconstructed with a smooth perturbation technique under different instructions. Abstracts of the VII International Symposium on Motor Control, June 21-25, 1993, Borovets, Bulgaria; Acta Physiologica & Pharmacologica Bulgarica, **19**: 37.

\*Latash M.L. Experimental studies of human voluntary movements in the framework of the equilibrium-point hypothesis. Technion, Haifa, Israel, June 27, 1993.

\*Latash M.L. Experimental reconstruction of control signals during voluntary movements. Weizman's Institute of Science, Rehovot, Israel, June 28, 1993.

40. \*Latash M.L. The Bernstein problem and the equilibrium-point hypothesis. Vision et Motricite, INSERM, Bron, France, July 2, 1993.

Latash M.L. Virtual trajectories and joint stiffness reconstructed with a smooth perturbation technique under different instructions. Abstracts of the XIV Congress of the International Society of Biomechanics, pp. 758-759, July 4-8, 1993, Paris, France

\*Latash M.L. Virtual trajectories of single-joint movements. CNRS, Paris, France, July 9, 1993.

Latash M.L. (Course Director) Control of Voluntary Movement: I. Basic Mechanisms. 1993 Annual Assembly of the American Academy of Physical Medicine and Rehabilitation, Nov. 1, 1993, Miami Beach, FL.

Latash M.L. (Course Director) Control of Voluntary Movement: II. Theories and Hypotheses. 1993 Annual Assembly of the American Academy of Physical Medicine and Rehabilitation, Nov. 2, 1993, Miami Beach, FL.

Latash M.L. & Gutman S.R. Abnormal motor patterns in the framework of the equilibrium-point hypothesis. 11th International Australasian Conference on Brain Research, August 15-20, Queenstown, New Zealand

\*Latash M.L. Languages of voluntary movement. University of Otago, Dunedin, September 14, New Zealand.

Aruin A.S., Nicholas J.J., Gottlieb G.L., Lee K.C. & Latash M.L. Anticipatory reactions during dropping and catching weights. Proceedings of the 17-th Annual Meeting of the American Society of Biomechanics, pp. 55-56, October 21-23, 1993, Iowa City.

\*Latash M.L. Languages of voluntary movement. Penn State University, November 18, State College, PA

\*Latash M.L. New developments in the equilibrium-point hypothesis. Penn State University, November 19, State College, PA

50. \*Latash M.L. Bernstein's traditions in motor control. York University, December 17, Toronto, Canada

Anson J.G. & Latash M.L. (1993) The First World Motor Control Day. *Letter to the Editor*. Human Movement Science, **12**: 713-714.

#### **1994**

\*Latash M.L. Bernstein's traditions: The languages of voluntary movement. University of Michigan, January 17, Ann Arbor, MI

- Nicholas J.J., Yee M. & Latash M.L. Decreased perception threshold to electrocutaneous stimulation in a patient with fibromyalgia. Letter to the Editor. Journal of Rheumatology **21**: 1580-1581.
- Latash M.L. Chairman of a Symposium "Motor Control in Rehabilitation Medicine", 7<sup>th</sup> World Congress of the International Rehabilitation Medicine Association, April 10-15, 1994, Washington, DC.
- \*Latash M.L. What is "Normal voluntary movement"? 7<sup>th</sup> World Congress of the International Rehabilitation Medicine Association, April 10-15, 1994, Washington, DC.
- Almeida G.L., Latash M.L., Corcos D.M., Gottlieb G.L. Practice and transfer effects during elbow movements in individuals with Down syndrome. Abstracts of the Sigma Xi Poster Session, p. 46, Rush University, Chicago, IL
- Almeida G.L., Latash M.L., Penn R.D., Corcos D.M., Gottlieb G.L. Selective action of baclofen in spastic paresis. Abstracts of the Sigma Xi Poster Session, p. 47, Rush University, Chicago, IL
- Aruin A.S., Nicholas J.J., Gottlieb G.L., Lee K.C., Latash M.L. Postural adjustments during dropping and catching loads. Abstracts of the Sigma Xi Poster Session, p. 107, Rush University, Chicago, IL
- Aruin A.S., Latash M.L., Shapiro M.B. Polyfunctionality of postural muscles in feed-forward postural reactions. Abstracts of the Sigma Xi Poster Session, p. 108, Rush University, Chicago.
60. Latash M.L., Aruin A.S., Neyman I., Nicholas J.J., Shapiro M.B. Feedforward postural control in Parkinson's disease. Abstracts of the Sigma Xi Poster Session, p. 109, Rush University, Chicago, IL
- Shapiro M.B., Aruin A.S., Latash M.L. EMG patterns during fast movements in a joint of a two-joint limb segment. Abstracts of the Sigma Xi Poster Session, p. 110, Rush University, Chicago.
- Aruin A.S., Nicholas J.J., Gottlieb G.L., Lee K.C. & Latash M.L. Anticipatory reactions during dropping and catching weights. Journal of Biomechanics, **27**: 604.
- Latash M.L. Virtual trajectories and joint stiffness reconstructed with a smooth perturbation technique under different instructions. Journal of Biomechanics, **27**: 732.
- Latash M.L., Aruin A.S., Shapiro M.B., Neyman I. & Nicholas J.J. Feedforward postural control in multi-joint movements. Abstracts of the Engineering Foundation Conference: "Neural Prostheses: Motor Systems IV", p. 21, July 23-28, 1994, Mt. Sterling, OH.
- Shapiro M.B., Aruin A.S. & Latash M.L. Muscle activation patterns during fast voluntary movements in a joint of a two-joint limb segment. Abstracts of the Engineering Foundation Conference: "Neural Prostheses: Motor Systems IV", p. 21, July 23-28, 1994, Mt. Sterling, OH.
- \*Latash M.L. Nicholai Bernstein and his famous problem. Tutorial. 18-th Annual Meeting of the American Society of Biomechanics, October 13-15, 1994; Columbus, OH.
- Aruin A.S., Shapiro M.B. & Latash M.L. Directional specificity of postural muscles during fast arm movements. Abstracts of the 18-th Annual Meeting of the American Society of Biomechanics, pp. 169-170, October 13-15, 1994; Columbus, OH.
- Shapiro M.B., Aruin A.S. & Latash M.L. Postural synergies during fast movements in a joint of a two-joint limb segment. Abstracts of the 18-th Annual Meeting of the American Society of Biomechanics, pp. 211-212, October 13-15, 1994; Columbus, OH.
- Aruin A.S., Latash M.L., Neyman I., Nicholas J.J. & Shapiro M.B. Postural adjustments during wrist and elbow movements in Parkinson's disease. Abstracts of the 24-th Annual Meeting of the Society for Neuroscience, pp. 1779, November 13-18, Miami Beach, FL.
70. Latash M.L. Chairman of the Organizing Committee of the Second International Conference "Motor Control in Down Syndrome", November 19-20, 1994; Chicago, IL
- Latash M.L. What is clumsiness? In: Latash ML (ed.) "Motor Control in Down Syndrome - II", pp. 68-71, Rush University, Chicago, 1994.
- Almeida G.L., Aruin A.S. & Latash M.L. Organization of a simple, two-joint synergy in individuals with Down syndrome. In: Latash ML (ed.) "Motor Control in Down Syndrome - II", pp. 16-23, Rush University, Chicago, 1994.

- Aruin A.S., Almeida G.L. & Latash M.L. Anticipatory postural adjustments during predictable and self-inflicted perturbations in Down syndrome. In: Latash ML (ed.) "Motor Control in Down Syndrome - II", pp. 28-33, Rush University, Chicago, 1994.
- Goodman S.R., Almeida G.L., Gottlieb G.L. & Latash M.L. Kinematic and EMG variability in fast learned movements of persons with Down syndrome. In: Latash ML (ed.) "Motor Control in Down Syndrome - II", pp. 46-53, Rush University, Chicago, 1994.
- Latash M.L. What is clumsiness? Brazilian International Journal of Adapted Physical Education Research, **1**: 155-156.
- Almeida G.L., Aruin A.S. & Latash M.L. Organization of a simple, two-joint synergy in individuals with Down syndrome. Brazilian International Journal of Adapted Physical Education Research, **1**: 141-142.
- Aruin A.S., Almeida G.L. & Latash M.L. Anticipatory postural adjustments during predictable and self-inflicted perturbations in Down syndrome. Brazilian International Journal of Adapted Physical Education Research, **1**: 146-147.
- Gutman S.R., Almeida G.L., Gottlieb G.L. & Latash M.L. Kinematic and EMG variability in fast learned movements of persons with Down syndrome. Brazilian International Journal of Adapted Physical Education Research, **1**: 148-149.
- Latash M.L., Gutman S.R. Abnormal motor patterns in the framework of the equilibrium-point hypothesis. International Journal of Neuroscience, **74**: 137.
80. Latash M.L., Aruin A.S., Neiman I. & Nicholas J.J. Feedforward postural reactions in patients with Parkinson's disease in two-joint tasks. Abstracts of the Second Russian Conference on Biomechanics dedicated to the memory of N.A. Bernstein, v. 1, p. 209, Nizhniy Novgorod, 22-25 November, 1994.

**1995**

- \*Latash M.L. Equilibrium-point control of voluntary movement. Northwestern University, January 6, Evanston, IL
- \*Latash M.L. The organization of a simple synergy. University of Delaware, March 10, Newark, DE
- Aruin A.S., Latash M.L., Nicholas J. J. Postural adjustments in standing of below knee amputees associated with perturbations. Abstracts of the Sigma Xi Poster Session, p. 99, Rush University, Chicago, IL
- Nicholas J.J., Aruin A.S., Latash M.L. Changes in moments of force of proximal leg muscles after below knee amputation. Abstracts of the Sigma Xi Poster Session, p. 100, Rush University, Chicago, IL
- Aruin A.S., Latash M.L. Unstable postural and anticipatory adjustments during load dropping. Abstracts of the Sigma Xi Poster Session, p. 101, Rush University, Chicago, IL
- Aruin A.S., Latash M.L. The role of the prime muscle group in feedforward postural adjustments during velocity independent perturbations. Abstracts of the Sigma Xi Poster Session, p. 102, Rush University, Chicago, IL
- Aruin A.S., Almeida G.L., Latash M.L. Feedforward postural reactions in Down syndrome in a two-joint motor task. Abstracts of the Sigma Xi Poster Session, p. 103, Rush University, Chicago.
- Aruin A.S., Almeida G.L., Latash M.L. Do predictable and self-inflicted perturbations necessitate anticipatory postural adjustments in Down syndrome? Abstracts of the Sigma Xi Poster Session, p. 104, Rush University, Chicago, IL
- Aruin A.S., Latash M.L., Nicholas J.J., Davis F., Stefoski D. A portable device for examination of gait in multiple sclerosis patients. Abstracts of the Sigma Xi Poster Session, p. 105, Rush University, Chicago, IL
90. \*Jeannerod M., Latash M., McClelland J.L., Pellizer G., Schöner G., Smith L.B., Spelke E., Thelen E. Object Retrieval in Infants: A Window on Acting and Knowing. A Conference at the Neuroscience Institute, May 10-13, La Jolla, CA.
- \*Latash M.L. Motor redundancy: How is our brain making its choices? Conference "Understanding Movement", June 28-30, Dunedin, New Zealand.

- \*Latash M.L. Voluntary movement: Living in an elastic field. University of Otago, July 6, Dunedin, New Zealand.
- \*Latash M.L. Anticipatory postural reactions in Parkinson's disease. University of Otago, July 14, Dunedin, New Zealand.
- \*Latash M.L. The problem of motor redundancy: How is our central nervous system make its choices? Conference "Multisegmental Motor Control", August 13-18, New Hampton, NH
- Aruin A.S. & Latash M.L. Motor action and predictability of perturbation in anticipatory postural adjustments. Abstracts of the 19-th Annual Meeting of the American Society of Biomechanics, pp. 59-60, August 24-26, 1995; Stanford, CA
- \*Latash M.L. Disorders of postural control in Parkinson's disease: Possible role of adaptive changes. Rutgers University, October 30, 1995; Newark, NJ.

**1996**

- Latash M.L. & Aruin A.S. Anticipatory postural adjustments and the equilibrium-point hypothesis of motor control. Abstracts of the NASPSPA Annual Conference, Journal of Sport & Exercise Psychology, vol. 18, Suppl., p. S52.
- Latash M.L. Adaptive properties of the central nervous system in health and disease. NASPSPA Annual Conference, June 6-9, 1996; Minett, Ontario, Canada.
- Latash M.L., Aruin A.S., Neyman I., Nicholas J.J. Feedforward postural control in Parkinson's disease. Abstracts of the 4-th International Congress of Movement Disorders, Movement Disorders, v. 11, Suppl. 1, p. 112. June 17-21, 1996; Vienna, Austria.
- 100. Latash M.L. & Massion J. Co-chairs. Round-table discussion "Adaptive Motor Patterns in Health and Disease", Motor Control-VIII, Abstracts, p. 61-62, June 23-27, 1996; Borovets, Bulgaria.
- Latash M.L. Chairman of the Organizing Committee. International Conference "Bernstein's Traditions in Motor Control", The Pennsylvania State University, August 23-25, 1996; State College, PA.
- Aruin A.S. & Latash M.L. Anticipatory postural control on conditions of postural instability. International Conference "Bernstein's Traditions in Motor Control", The Pennsylvania State University, August 23-25, 1996; State College, PA.
- Jaric S. & Latash M.L. Two synergies used in a planar multi-joint task including obstacle avoidance. International Conference "Bernstein's Traditions in Motor Control", The Pennsylvania State University, August 23-25, 1996; State College, PA.
- Li Z.-M., Latash M.L. & Zatsiorsky V.M. Force sharing among fingers in isometric tasks: An experimental approach to Bernstein's problem. International Conference "Bernstein's Traditions in Motor Control", The Pennsylvania State University, August 23-25, 1996; State College, PA.
- Aruin A.S., Latash M.L., Neyman I., Nicholas J.J. About the reasons of lack of anticipatory postural adjustments in Parkinson's disease. Rush University Research Forum 1996, E105, Rush University: Chicago, IL.
- Aruin A.S. & Latash M.L. The effects of postural instability on anticipatory postural adjustments. Proceedings of the Annual Meeting of the American Society of Biomechanics, pp. 133-134, Atlanta, GA
- Li Z.-M., Latash M.L. & Zatsiorsky V.M. Force sharing among fingers acting in parallel as a model of the redundancy problem. Proceedings of the Annual Meeting of the American Society of Biomechanics, pp. 165-166, Atlanta, GA
- Latash M.L. & Aruin A.S. Reconstruction of joint equilibrium trajectories during unrestrained arm movements. Abstracts of the Annual Meeting of the Society for Neuroscience, v. 22, p 1636.
- \*Latash M.L. The equilibrium-point hypothesis of motor control. University of Colorado at Boulder, October 11, 1996.
- 110. \*Latash M.L. Motor control: The field of excitement. Free University, Amsterdam, The Netherlands, November 14, 1966.

**1997**

- \*Latash M.L. Contemporary motor control. University of San Paulo, San Paulo, Brazil, January 6, 1997.
- \*Latash M.L. Motor control: Basic mechanisms and pathologies. Federal University of San Carlos, San Carlos, Brazil, January 8, 1997.
- Latash M.L. Motor Control - Finally a journal for all of us. Motor Control. The Editorial. **1**: 1-2, 1997.
- Latash M.L. "Motor Control and Sensory Motor Integration". A book review. Motor Control, **1**: 192-196.
- Latash M.L. The answer may be 42. So, what is the question? Motor Control, **1**: 205-207.
- \*Latash M.L. Joints, limbs, and bodies: Suprisingly linear systems built with nonlinear elements. 44-th Annual Meeting of the American College of Sports Medicine, Denver, May 28-31, 1997
- DeVita P., Lieber R.L., Nichols T.R., Kirsch R.F., Latash M.L., Farley C. Symposium "Muscle Stiffness and the Control of Movement". Medicine and Science in Sports and Exercise, vol. 29, Supplement, page S109, 1997.
- \*Latash M.L. The role of muscle stiffness in motor control. 20-th Annual Conference of the National Strength and Conditioning Association, Las Vegas, June 26, 1997
- Latash M.L., Aruin A.S., Forrest W.R. Adaptive changes in anticipatory postural adjustments. Proceedings of an International Conference "Brain and Movement". p.115, St.Petersbrug-Moscow, July 5-10, 1997.
120. Latash M.L., Domen K, Aruin A.S., Zatsiorsky V.M. Equilibrium-point control of multi-joint movements. Proceedings of an International Conference "Brain and Movement". p.116, St.Petersbrug-Moscow, July 5-10, 1997.
- \*Latash M.L. Contemporary views on control of vertical posture. First Bahian Conference on Contemporary Problems of Kinesiology. Salvador de Bahia, Brazil, September 5-8, 1997.
- \*Latash M.L. Issues of motor rehabilitation. First Bahian Conference on Contemporary Problems of Kinesiology. Salvador de Bahia, Brazil, September 5-8, 1997.
- Latash M.L. Motor control. An intensive course. Hospital Universitario Prof. Edgard Santos. Salvador de Bahia, Brazil, September 5-8, 1997.
- Zatsiorsky V.M., Li Z.-M., Latash M.L. The interaction and enslaving of finger flexors in multi-finger tasks - A neural network model. Abstr. of the XXI Annual Meeting of the American Society of Biomechanics
- Li Z.-M., Latash M.L., Zatsiorsky V.M. Exploring minimal norm optimization for solving the redundancy problem in multi-finger tasks. Abstr. of the XXI Annual Meeting of the American Society of Biomechanics
- Li Z.-M., Latash M.L., Zatsiorsky V.M. Coordination of gripping fingers: The role of thumb position in maximal exertion. Abstr. of the XXI Annual Meeting of the American Society of Biomechanics
- Laczko J., Jaric S., Latash M.L., Zatsiorsky V.M. The relation between individual joint kinematics and the minimal jerk principle as applied to the hand during planar movements. Annual Meeting of the Society for Neuroscience, New Orleans, Oct. 25-30, 1997.
- 1998**
- \*Latash M.L. Coordination in multi-finger tasks. University of Birmingham, Birmingham, UK, January 6, 1998.
- \*Latash M.L. Principles of synergy organisation during finger coordination. Imperial College School of Medicine, London, UK, January 9, 1998.
130. Latash M.L. Bernstein's papers in "Motor Control". An Editorial. Motor Control, **2**: 1.
- Aruin A.A., Forrest WR, Latash M.L. Anticipatory postural adjustments in conditions of postural instability. Rush University Research Forum, p. 174, February 25-27, 1998.
- Aruin A.A., Latash M.L. The effect of magnitude of perturbation on anticipatory postural adjustments. Rush University Research Forum, p. 175, February 25-27, 1998.

- \*Latash M.L. Neural Control I: Movement coordination by the central nervous system. Tenth International Bobath Symposium in the Treatment of Adult Hemiplegia, San Francisco, April 18, 1998.
- \*Latash M.L. Neural Control II: Movement coordination in motor disorders. Tenth International Bobath Symposium in the Treatment of Adult Hemiplegia, San Francisco, April 19, 1998.
- Latash M.L., Li Z.-M., Zatsiorsky V.M. Multi-finger synergies in tasks involving force production by a redundant set of fingers. Journal of Sport & Exercise Psychology, NASPSPA Annual Conference Abstracts, p. S31, Chicago, June 11-14, 1998.
- Latash M.L., Aruin A.S., Zatsiorsky V.M. Joint equilibrium trajectories during multi-joint movements. Journal of Sport & Exercise Psychology, NASPSPA Annual Conference Abstracts, p. S42, Chicago, June 11-14, 1998.
- Latash M.L. Reaction to the Symposium on Motor Development and Control. NASPSPA Annual Conference, Chicago, June 11-14, 1998.
- \*Latash M.L. Implications of motor control research for motor rehabilitation. Abstracts of the Symposium "Advances in Motor Rehabilitation", p. 11, Chicago, June 19, 1998.
- Shiratori T., Aruin A.S., Latash M.L. Anticipatory phase of step initiation in Parkinson's disease. Abstracts of the Symposium "Advances in Motor Rehabilitation", p. 18, Chicago, June 19, 1998.
140. Zatsiorsky V.M., Li Z.-M., Latash M.L. Motor redundancy in multi-digit tasks. Third World Congress of Biomechanics, Tokyo, Japan, August 1998.
- Aruin A.S., Almeida G.L., Latash M.L. Simple two-joint synergy in individuals with Down syndrome. Rehabilitation R&D Progress Reports, Veterans Health Administration, **35**: 171.
- Aruin A.S., Nicholas J.J., Latash M.L. Postural adjustments during standing in below-knee amputees. Rehabilitation R&D Progress Reports, Veterans Health Administration, **35**: 29-30.
- Li Z.-M., Latash M.L., Zatsiorsky V.M. Enslaving effects among hand muscles and their neural network modeling. Abstr. of the XXII Annual Meeting of the American Society of Biomechanics, August 1998.
- Li Z.-M., Latash M.L., Zatsiorsky V.M. The contribution of finger flexor muscles to the finger joint moments in isometric tasks. Abstr. of the XXII Annual Meeting of the American Society of Biomechanics, August 1998.
- \*Latash M.L. Which parameters of equilibrium trajectories do we learn? Plasticity and Adaptation in Motor Control: Ontogenesis, Motor Learning, and Recovery of Functions. A Jacques Monod Conference, Aussois, France, September 19-24, 1998
- Latash M.L. Vice-President and Chairman of the International Advisory Board. Third International Congress on Motor Rehabilitation, Aguas de Lindoia, Brazil, October 5-8, 1998
- \*Latash M.L. Strategies of motor rehabilitation: The role of adaptive changes. Third International Congress on Motor Rehabilitation, Aguas de Lindoia, Brazil, October 5-8, 1998. Revista Brasileira de Fisioterapia, v. 3, Supplement, p. 18-19, 1998.
- Scholz J., Latash M.L. (1998) Alteration of a bimanual synergy for object support in patients with hemiplegia. Abstracts of the Society for Neuroscience, v. 24, p. 1664.
- Shiratori T., Latash M.L. (1998) Anticipatory postural adjustments in asymmetrical stability conditions for the two legs and during asymmetrical arm movements. Abstracts of the Society for Neuroscience, v. 24, p. 148.
150. Shiratori T., Latash M.L. (1998) Changes in anticipatory postural adjustments associated with postural instability induced by manipulations of friction between the feet and supporting surface. Abstracts of the Conference "Identifying Control Mechanisms for Postural Behaviors", p. 82-83, Nov. 6-7, 1998, Westwood, CA

### 1999

- Latash M.L. What does it take to be Jean Massion? An address for the Conference in Honor of Jean Massion, Marseille, May, 1999

- \*Latash M.L. Synergies as means for solving the problem of motor redundancy. University of Thessaloniki, Greece, June 5, 1999.
- \*Latash M.L. Essential features of synergies studied using various multi-element tasks. Hungarian University of Physical Education, Budapest, Hungary, June 10, 1999.
- \*Latash M.L. Synergies as biological solutions for the problem of motor redundancy. Walsh University, North Canton, Ohio, July 28, 1999.
- Li Z.M., Daly J., Latash M.L., Zatsiorsky V.M. Force sharing among fingers induced by computer simulated external mechanical constraints. 17th Congress of the International Society of Biomechanics.
- Latash M.L. Chairman of the Organizing Committee of the International Conference "Progress in Motor Control-II: Structure-Function Relations in Voluntary Movement", August 19-22, 1999, State College, PA.
- Li Z.M., Daly J., Latash M.L., Zatsiorsky V.M. Force sharing among fingers induced by computer simulated external mechanical constraints. Abstracts of the International Conference Progress in Motor Control-II, p. 106-107, August 19-22, 1999, The Pennsylvania State University.
- Scholz J.P., Schoner G., Latash M.L. Identifying essential control variables: A test of the uncontrolled manifold concept. Abstracts of the International Conference Progress in Motor Control-II, p. 136, August 19-22, 1999, The Pennsylvania State University.
- Shiratori T., Latash M.L. Anticipatory postural adjustments under asymmetrical perturbations and during standing on rollerskates: Different roles of proximal and distal postural muscles. Abstracts of the International Conference Progress in Motor Control-II, p. 144-145, August 19-22, 1999, The Pennsylvania State University.
- 160. Slijper H., Latash M.L. Anticipatory postural adjustments in conditions of postural instability and manual support. Abstracts of the International Conference Progress in Motor Control-II, p. 147-148, August 19-22, 1999, The Pennsylvania State University .
- Danion F., Latash M.L., Zatsiorsky V.M. The effect of fatigue on finger coordination during isometric tasks. Abstracts of the International Conference Progress in Motor Control-II, p. 54, August 19-22, 1999, The Pennsylvania State University.
- \*Latash M.L., Feldman A.G., Ostry D.G., Mussa Ivaldi F.A. Round-table discussion on the equilibrium-point hypothesis. Motor Control Conference, September 22-26, Varna, Bulgaria
- Danion F., Latash M.L., Li Z.-M., Zatsiorsky V.M. Effects of single- and multi-finger prolonged exercise on multi-finger coordination. Motor Control Conference, September 22-26, Varna, Bulgaria
- \*Latash M.L. The organization of simple synergies. Institute for Working Life, September 27, 1999, Umea Sweden
- \*Latash M.L. Pre-programmed corrections within a two-joint synergy. Institute for Working Life, September 27, 1999, Umea Sweden
- \*Latash M.L., Danion F., Li Z.-M., Zatsiorsky V.M. An update on finger coordination studies at Penn State. September 28, 1999, Umea University, Department of Physiology, Umea, Sweden
- Vaillancourt D.E., Newell K.M., Latash M.L. Neuromuscular entrainment and the mechanical-reflex hypothesis of finger tremor. Soc. Neurosci. Abstracts, v. 2, p. 1913, 1999.
- Slijper H., Latash M.L. Anticipatory postural adjustments in conditions of postural instability and manual support. Abstracts of the 23-rd Annual Meeting of the American Society of Biomechanics, p. 250-251, Pittsburgh, October 21-34, 1999.
- Shiratori T., Latash M.L. Postural anticipation in catching self- and externally-released loads. Abstracts of the 23-rd Annual Meeting of the American Society of Biomechanics, p. 254-255, Pittsburgh, October 21-34, 1999.

170. Mochizuki L., Duarte M., Zatsiorsky V.M., Amadio A.C., Latash M.L. Effects of different bases of support on postural sway. Abstracts of the 23-rd Annual Meeting of the American Society of Biomechanics, p. 260-261, Pittsburgh, October 21-34, 1999.

**2000**

\*Latash M.L. The complex organization of simple synergies (or, maybe, the other way around). Arizona State University, Tempe, April 6, 2000

Li Z.-M., Zatsiorsky V.M., Latash M.L. The effect of extensor mechanism on finger flexor force. Abstracts of the 24-rd Annual Meeting of the American Society of Biomechanics, p. 233-234, Chicago, July 19-22, 2000.

Li S., Danion F, Li Z.-M., Latash M.L., Zatsiorsky V.M. Finger coordination in multi-finger force production tasks involving fingers of the right and of the left hand. Abstracts of the 24-rd Annual Meeting of the American Society of Biomechanics, p. 161-162, Chicago, July 19-22, 2000.

Danion F, Li S., Li Z.-M., Latash M.L., Zatsiorsky V.M. The effect of aging on multi finger force production. Abstracts of the 24-rd Annual Meeting of the American Society of Biomechanics, p. 87-88, Chicago, July 19-22, 2000.

\*Latash M.L. Adaptive features in movements of persons with Down syndrome. The 9-th International Workshop on The Molecular Biology of Chromosome 21 and Down Syndrome, Bar Harbor, ME, September 23-26, 2000

\*Latash M.L. Analysis of the structure of finger force variability in multi-finger tasks. University of Maryland, College Park, MD, October 6, 2000.

\*Latash M.L. Equilibrium-point hypothesis of motor control. Academy of Physical Education, October 23, 2000, Wroclaw, Poland

\*Latash M.L. Equilibrium-point hypothesis of human movement. Academy of Physical Education, October 27, 2000, Katowice, Poland

Latash M.L. Member of the Scientific Committee. International Conference "Motor Control 2000", October 27-29, 2000, Bielo Bialsko, Poland

180. \*Latash M.L. Equilibrium-point hypothesis and internal inverse models. International Conference "Motor Control 2000", October 27-29, 2000, Biela Bialsko, Poland

Aruin A.S., Shiratori T., Latash M.L. The role of action in the generation of anticipatory postural adjustments in standing subjects. Abstracts of the 30-th Annual Meeting of the Society for Neuroscience, New Orleans, November 4-9, 2000.

Latash M.L., Danion F., Scholz J.P., Schöner G. Finger coordination in force production tasks and the structure of motor variability. Abstracts of the 30-th Annual Meeting of the Society for Neuroscience, New Orleans, November 4-9, 2000.

**2001**

\*Latash M.L. Finger coordination reflected in the structure of force variability. INSERM, Lyon, March 6, 2001.

\*Latash M.L., Danion F., Scholz J.P., Schöner G. Studies of finger coordination using the uncontrolled manifold approach. University of Illinois at Chicago, June 1, 2001.

Laczko J., Jaric S., Domkin D., Johansson H., Latash M.L. Stabilization of kinematic variables in the control of bimanual pointing movements. Proceedings of the 2001 International Joint Conference on Neural Networks, July 14-19, 2001, Washington, D.C.

Latash M.L. (2001) "Classical Heritage" in *Motor Control*. Motor Control: 3: 221.

\*Latash M.L. (2001) The coordinated action of fingers: New experimental and theoretical approaches. In: Meulenbroek R.G.J., Steenbergen B. (Eds.) "Proceedings of the Tenth Biennial Conference of the International Graphonomics Society", p. 63-67, University of Nijmegen: The Netherlands

Latash M.L. Member of the Organizing Committee of the Third International Conference "Progress in Motor Control: From Basic Science to Applications", Montreal, Canada, August 15-18, 2001.

- \*Latash M.L., Danion F., Scholz J.P., Schöner G. Coordination of multi-element motor systems based on motor abundance. Third International Conference “Progress in Motor Control: From Basic Science to Applications”, Montreal, Canada, August 15-18, 2001, Abstracts, p. 12-13.
190. Danion F., Latash M.L., Li S., Scholz J.P., Schöner G., Zatsiorsky V.M. A model for finger interaction during maximal force production tasks. Third International Conference “Progress in Motor Control: From Basic Science to Applications”, Montreal, Canada, August 15-18, 2001, Abstracts, p. 16.
- Li S., Danion F., Latash M.L., Zatsiorsky V.M. Bimanual interactions in submaximal multi-finger force production tasks. Third International Conference “Progress in Motor Control: From Basic Science to Applications”, Montreal, Canada, August 15-18, 2001, Abstracts, p. 29.
- Jaric S., Laczko J., Domkin D., Latash M.L., Johansson H. Discerning control movement strategies by an analysis of the structure of motor variability. Third International Conference “Progress in Motor Control: From Basic Science to Applications”, Montreal, Canada, August 15-18, 2001, Abstracts, p. 23.
- Scholz J.P., Latash M.L., Schöner G. Central control strategies revealed through an analysis of the structure of finger force variability under stable and unstable conditions. Third International Conference “Progress in Motor Control: From Basic Science to Applications”, Montreal, Canada, August 15-18, 2001, Abstracts, p. 43.
- Shiratori T., Latash M.L. Postural preparations for sequential unloading-loading perturbations. Third International Conference “Progress in Motor Control: From Basic Science to Applications”, Montreal, Canada, August 15-18, 2001, Abstracts, p. 94.
- Slijper H., Krishnmoorthy V., Latash M.L. Effects of light touch on the stabilization of posture: Differential effects on postural sway and anticipatory postural adjustments. Third International Conference “Progress in Motor Control: From Basic Science to Applications”, Montreal, Canada, August 15-18, 2001, Abstracts, p. 96.
- Feldman A.G. Gottlieb G.L., Lackner J., Latash M.L. (Chair). The equilibrium-point hypothesis of motor control (A round-table discussion). International Conference “From Basic Motor Control to Function Recovery II”, Varna, Bulgaria, September 9-12, 2001.
- Danion F., Latash M.L., Li S., Oathes D. The effect of transcranial magnetic stimulation on fingertip forces during multi-finger task at various force levels. International Conference “From Basic Motor Control to Function Recovery II”, Varna, Bulgaria, September 9-12, 2001.
- \*Latash M.L. The Uncontrolled Manifold Hypothesis: A new approach to the problem of motor redundancy. CNRS, Universite de Mediterranee, Marseille, France, September 20, 2001
- Danion F., Latash M.L., Zatsiorsky V.M., Li S., Scholz J.P., Schöner G. Modeling finger interaction during maximal voluntary contractions by one or several fingers. Abstracts of the Third International Conference on Sensorimotor Controls in Men and Machines, p. 31, October 5-6, 2001, Marseille, France.
200. \*Latash M.L. New theoretical and experimental approaches to the coordinated action of fingers. University of Verona, Italy, October 28, 2001.
- \*Latash M.L. Finger coordination in grasping tasks: Observations of natural movements and TMS studies. University College of London, Institute of Neurology, UK, November 29, 2001
- \*Latash M.L. Specific features of the coordination of biological motion. University of Birmingham, UK, December 5, 2001.
- \*Latash M.L. The problem of motor redundancy solved with motor abundance. Oxford University, UK, December 13, 2001.
- 2002**
- \*Latash M.L. New approaches to motor synergies. University of Sao Paulo, Brazil, February 26, 2002

- \*Latash M.L. Recent progress in the equilibrium-point hypothesis. University of Sao Paulo, Brazil, February 28, 2002
- \*Latash M.L. Postural control and voluntary action. University of Sao Paulo, Brazil, March 6, 2002.
- \*Latash M.L. Sensory contribution to postural control. University of Ribeirao Preto, March 11, 2002.
- \*Latash M.L. Motor control studies in movement disorders. University of Ribeirao Preto, April 5, 2002.
- Latash M.L., Rothwell J.C., Yarrow K. The formation of a multi-finger synergy: Effects of practice studied with TMS. First Mid-Atlantic Conference on Motor Behavior, Newark, DE, April 10, 2002.
- 210. \*Latash M.L., Rothwell J.C., Yarrow K. Learning a multi-finger synergy: A study using transcranial magnetic stimulation. University of Illinois at Chicago, April 18, 2002.
- \*Latash M.L. The formation of multi-finger synergies studied with transcranial magnetic stimulation. Karolinska University, Stockholm, Sweden, May 17, 2002.
- \*Latash M.L. What is a motor synergy? University of Umea, Umea, Sweden, May 22, 2002.
- Latash M.L. International Society of Motor Control. Editorial. Motor Control, 6: 213-216, 2002.
- \*Latash M.L. The development of multi-finger synergies studied with TMS. Institute for Working Life, Umea, Sweden, June 5, 2002.
- \*Latash M.L. Motor synergies in everyday life. A Pattishall Research Lecture. The Pennsylvania State University, University Park, PA, October 23, 2002.
- Shinohara M., Li S., Kang N., Latash M.L. Changes in finger coordination in pressing tasks with aging. 32-nd Annual Meeting of the Society for Neuroscience, #665.13, November 1-8, 2002, Orlando, FL.
- Slijper H., Latash M.L. The effects of tendon vibration on the modulation of anticipatory postural adjustments. 32-nd Annual Meeting of the Society for Neuroscience, #566.14, November 1-8, 2002, Orlando, FL.
- \*Latash M.L. Motor synergies in healthy and impaired persons. A Pre-Conference Workshop. The 8-th General Assembly of Asian Confederation for Physical Therapy. Bangkok, Thailand, November 17, 2002.
- \*Latash M.L. Control and rehabilitation of a disordered movement. The 8-th General Assembly of Asian Confederation for Physical Therapy. Abstracts, p. 12-17, Bangkok, Thailand, November 17-20, 2002.

### 2003

- 220. \*Latash M.L. Motor synergies: Insights from analysis of the structure of motor variability. Center for Ecological Studies of Perception and Action University of Connecticut, Storrs, February 17, 2003.
- Shim J.K., Latash M.L., Zatsiorsky V.M. The static human prehension: Synergy and principle of superposition. Midwest Graduate Biomechanics Symposium, Toledo, Ohio, March 4-5, 2003
- \*Latash M.L. Effects of practice on motor coordination in persons with Down syndrome. International Down Syndrome Research Conference on Cognition and Behavior, April 3-5, 2003, Denver, CO.
- \*Latash M.L. Finger coordination and its changes with age. Milton S. Hershey Medical Center, May 1, 2003, Hershey, PA
- Shinohara M., Latash M.L. Effects of age and gender on finger coordination under different involvement of intrinsic hand muscles. Annual Meeting of the American College of Sports Medicine, May 28-31, 2003, San Francisco, CA
- Shim J.K., Latash M.L., Zatsiorsky V.M. Superposition and hierarchical organization of static prehension in humans. Congress of the International Society of Biomechanics July 6-11, 2003, Dunedin, New Zealand.

- Latash M.L. Member of the Organizing Committee of the International Conference “Progress in Motor Control – IV: Motor Control and Learning over the Lifespan”. Caen, France, August 20-23, 2003.
- Kang N., Shim J.K., Shinohara M., Latash M.L. Effects of practice on finger coordination in a novel force production task. Conference “Progress in Motor Control – IV: Motor Control and Learning over the Lifespan”. Caen, France, August 20-23, 2003.
- \*Latash M.L., Kang N., Li S., Shinohara M., Visser J., Zatsiorsky V.M. Age related changes in finger interaction during force production tasks. Conference “Progress in Motor Control – IV: Motor Control and Learning over the Lifespan” p.13, Caen, France, August 20-23, 2003.
- Krishnamoorthy V., Latash M.L., Scholz J.P., Goodman S., Zatsiorsky V.M. Muscle synergies in standing persons. Conference “Progress in Motor Control – IV: Motor Control and Learning over the Lifespan”, p. 108, Caen, France, August 20-23, 2003.
230. Zatsiorsky V.M., Latash M.L., Gregory R.W., Gao F., Pataky T.C., Shim J.K. Control of prehension. Conference “Progress in Motor Control – IV: Motor Control and Learning over the Lifespan”, p. 176, Caen, France, August 20-23, 2003.
- Shim J.K., Latash M.L., Zatsiorsky V.M. Force variability and null spaces in hierarchical organization of static human prehension. American Society of Biomechanics Annual Meeting, September 25-27, 2003, Toledo, Ohio.
- Latash M.L. Member of the Program Committee. Eleventh Conference of the International Graphonomics Society, Scottsdale, AZ, November 2-5, 2003.
- Latash M.L., Shim J.K., Gao F., Zatsiorsky V.M. Two control processes associated with multi-digit prehension. In: Teulings H.-L., Van Gemmert A.W.A. (Eds.) Proceedings of the Eleventh Conference of the International Graphonomics Society, p. 21-24, Scottsdale, AZ, November 2-5, 2003.
- Pataky T.C., Latash M.L., Zatsiorsky V.M. Numerical optimization predicts human manipulation performance when rotating an object through the gravity field. Abstracts of the NIH Symposium on Biocomputation and Bioinformation “Digital Biology: The Emerging Paradigm”, p. 144, Bethesda, MD, November 6-7, 2003
- Krishnamoorthy V., Goodman S.R., Latash M.L., Scholz J.P., Zatsiorsky V.M. Multi-muscle synergies in postural tasks. Annual Meeting of the Society for Neuroscience, New Orleans, November 8-13, 2003.
- \*Latash M.L. Finger interaction during prehensile and pressing tasks. University of Michigan, Ann Arbor, MI, November 25, 2003.

#### 2004

- \*Latash M.L. Emergence of multi-finger synergies with practice. Northwestern University, Chicago, February 12, 2004.
- \*Latash M.L. Multi-effector synergies: Challenges and approaches. Northwestern University, Chicago, February 13, 2004.
- \*Latash M.L. Emergence of multi-finger synergies with practice. Arizona State University, Tempe, AZ, February 19, 2004.
240. \*Latash M.L. Effects of practice on multi-finger interaction. Arizona State University, Tempe, AZ, February 20, 2004.
- \*Latash M.L. Effects of practice on motor coordination in Down syndrome. Third International Down Syndrome Symposium, Mexico City, Mexico, March 3-5, 2004.
- \*Latash M.L. Timing synergies: Do they exist? University of Delaware, Newark, DE, May 21, 2004.
- \*Latash M.L. Postural synergies and their development. International Symposium “Posture in the Picture”, Abstracts, p. 17, Gröningen, The Netherlands, June 17-19, 2004.
- Latash M.L. Director of The First Motor Control Summer School, Jim Thorpe, PA, July 7-11, 2004.

- \*Latash M.L. Effects of practice on motor synergies. The First Motor Control Summer School, Jim Thorpe, PA, July 7-11, 2004.
- Latash M.L. (2004) Brain mechanisms for the integration of posture and movement (Book review). *Motor Control* **8**: 359-363.
- \*Latash M.L. Learning motor synergies. Cornell University, October 14, 2004.
- \*Latash M.L. The internal inverse/direct models (force-control) versus the equilibrium-point hypothesis. International Conference "Motor Control 2004", Wisla, Poland, October 22-24, 2004.
- \*Latash M.L. Motor synergies and their changes with practice. International Conference "Motor Control 2004", Wisla, Poland, October 22-24, 2004.
- 250. Latash M.L., Jaric S. Co-Chairs of the Round-Table Discussion "Current Issues in Motor Control". International Conference "Motor Control 2004", Wisla, Poland, October 22-24, 2004.

### 2005

- Latash M.L. (2005) A new biography of Nikolai Bernstein. Editorial. *Motor Control* **9**: 1-2.
- \*Latash M.L. Motor coordination and discoordination. A Russell Award Lecture. The Pennsylvania State University, University Park, PA, January 31, 2005.
- \*Latash M.L. Changes in multi-digit synergies in preparation to action: Anticipatory covariation. University of Montreal, Canada, March 7, 2005.
- \*Latash M.L. Learning motor synergies. Centre de recherche interdisciplinaire en readaptation, Montreal, Canada, March 8, 2005.
- Zatsiorsky V.M., Latash M.L., Gao F., Li Z.-M., Pataky T.C. Neural network modeling of finger coordination. Proceedings of the 7-th WSEAS International Conference on Automatic Control, Modeling and Simulation, p. 267-270, Prague, Czech Republic, March 13-15, 2005
- \*Latash M.L. Adjustments in motor synergies in preparation to action. University of Illinois at Chicago, March 18, 2005.
- Zatsiorsky V.M., Gao F., Latash M.L. Finger forces during manipulation of hand-held objects: Different effects of gravity and inertia. World Haptics 2005, Pisa, Italy, March 18-20, 2005.
- \*Latash M.L., Krishnamoorthy V., Wang Y., Zatsiorsky V.M. Muscle synergies in postural preparation to action. XVII-th Conference of the International Society for Postural and Gait Research, Marseille, France, May 29-June 2, 2005, *Gait and Posture*, v. 21, Suppl. 1, p. S45.
- Siwasakunrat S., Latash M.L. Anticipatory postural adjustments during stepping in place. XVII-th Conference of the International Society for Postural and Gait Research, Marseille, France, May 29-June 2, 2005, *Gait and Posture*, v. 21, Suppl. 1, p. S47.
- 260. \*Latash M.L. New approaches to motor synergies. Institute of Neurophysiology and Higher Nervous Activity. Moscow, Russia, June 8, 2005.
- Latash M.L. Director. Second Motor Control Summer School. Ligonier, PA, June 24-28, 2005
- Latash M.L. Movement and postural synergies. Second Motor Control Summer School. Ligonier, PA, June 24-28, 2005
- Gao F., Latash M.L., Zatsiorsky V.M. In contrast to robots, in humans internal and manipulation forces are coupled. Proceedings of the IEEE 9-th International Conference on Rehabilitation Robotics, p. 404-407, Chicago, IL, June 28 – July 1, 2005.
- Zatsiorsky V.M., Gao F., Latash M.L. Neural network modeling of the hierarchical control of prehension. IMACS'2005 World Congress, p. 67, Paris, France, July 11-15, 2005.
- \*Latash M.L. Motor variability and stability of motor performance. The 10th Annual Congress of the European College of Sport Science, Belgrade, Yugoslavia, July 13-16, 2005.
- \*Latash M.L. What are normal movements in atypical populations? A 1996 question revisited in 2005. III Step Summer Institute on Translating Evidence into Practice: Linking Movement Science and Intervention, p. 148-152, Salt Lake City, UT, July 15-21, 2005.
- \*Latash M.L. Motor control: Equilibrium-point hypothesis and internal models. A tutorial. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.

- Shim J.K., Latash M.L., Zatsiorsky V.M. Prehension synergies: Trial-to-trial variability and principle of superposition during static prehension in three dimensions. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
- Aoki T., Latash M.L., Zatsiorsky V.M. Prehension synergies: Effects of friction. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
270. Wang Y., Shapkova E.Yu., Siwasakunrat S., Zatsiorsky V.M., Latash M.L. Stepping from a narrow support. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
- Gao F., Latash M.L., Zatsiorsky V.M. Does human hand perform like a robotic gripper? An examination of internal forces during object manipulation. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
- Niu X., Latash M.L., Zatsiorsky V.M. Effects of the grasping force magnitude on the individual digit forces during prehension with five digits. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
- Zhang W., Yoshida N., Latash M.L. Accurate production of patterns of the total moment by a set of fingers. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
- Woo B.H., Kim S.W., Zatsiorsky V.M., Latash M.L., Shim J.K. Enslaving effects of finger movement on pressing forces of other fingers. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
- Kim S.W., Shim J.K., Zatsiorsky V.M., Latash M.L. Preparation to a predictable perturbation during multi-finger force production. International Society of Biomechanics XX-th Congress. Cleveland, August 1-5, 2005.
- Wang Y., Zatsiorsky V.M., Latash M.L. Muscle synergies involved in stabilizing shifts of the center of pressure while making a first step. Progress in Motor Control-V, p. 1-36, University Park, PA, August 17-20, 2005.
- Freitas S.M.S.F., Latash M.L., Duarte M. Kinematic synergies and fast and accurate whole-body movements. Progress in Motor Control-V, p. 4-5, University Park, PA, August 17-20, 2005.
- Degani A.M., Danna dos Santos A., Latash M.L. Postural preparations to making a step under a simple reaction time instruction. Progress in Motor Control-V, p. 4-2, University Park, PA, August 17-20, 2005.
- Gorniak S.L., Zatsiorsky V.M., Latash M.L. Grip force control during the production of a non-zero moment of force. Progress in Motor Control-V, p. 2-9, University Park, PA, August 17-20, 2005.
280. Siwasakunrat S., Latash M.L. Modulation of anticipatory postural adjustments during stepping in place. Progress in Motor Control-V, p. 8-26, University Park, PA, August 17-20, 2005.
- Olafsdottir H., Yoshida N., Shim J.K., Zatsiorsky V.M., Latash M.L. Anticipatory covariation in multi-digit force production tasks. Progress in Motor Control-V, p. 2-18, University Park, PA, August 17-20, 2005.
- Zhang W., Yoshida N., Zatsiorsky V.M., Latash M.L. Accurate production of patterns of the moment of force by a set of fingers. Progress in Motor Control-V, p. 2-23, University Park, PA, August 17-20, 2005.
- Krishnamoorthy V., Scholz J.P., Latash M.L. Muscle synergies in the upper extremity during stabilization of balance in sitting. Progress in Motor Control-V, p. 2-13, University Park, PA, August 17-20, 2005.
- Niu X., Latash M.L., Zatsiorsky V.M. Effects of a constraint of the grip force on the individual finger forces in multi-finger prehension. Progress in Motor Control-V, p. 2-17, University Park, PA, August 17-20, 2005.
- Aoki T., Latash M.L., Zatsiorsky V.M. Effects of friction at the digit-object interface on the digit forces in multi-digit prehension. Progress in Motor Control-V, p. 2-24, University Park, PA, August 17-20, 2005.

- Shim J.K., Latash M.L., Zatsiorsky V.M. Principle of superposition in human prehension: Independent control of grasping and rotational equilibrium. Progress in Motor Control-V, p. 2-21, University Park, PA, August 17-20, 2005.
- Latash M.L., Levin M.F. (2005) Preface. In: Feldman A.G. 1965-2005. Forty Years of the Equilibrium-Point Hypothesis, p. v-vi, Tristar Printing, Lachine, Canada
- Berkinblit M.B., Latash M.L. (2005) Introduction to the first section. In: Feldman A.G. 1965-2005. Forty Years of the Equilibrium-Point Hypothesis, p. 1-2, Tristar Printing, Lachine, Canada
- \*Latash M.L. Motor synergies that stabilize and destabilize action. From Basic Motor Control to Functional Recovery – IV, September 21-25, 2005, Sofia, Bulgaria.
290. Shapkova E.Yu., Latash M.L. The organization of central spinal generators in humans. From Basic Motor Control to Functional Recovery – IV, September 21-25, 2005, Sofia, Bulgaria.
- Wang Y., Shapkova E.Yu., Siwasakunrat S., Zatsiorsky V.M., Latash M.L. Stepping from a narrow support. From Basic Motor Control to Functional Recovery – IV, September 21-25, 2005, Sofia, Bulgaria.
- \*Latash M.L. Motor synergies: Posture, movement, and effects of practice. Kaunas Medical University, September 27, 2005, Kaunas, Lithuania.
- \*Latash M.L. Motor synergies and physical therapy. XVI Congress of Brazilian Physical Therapists, October 5-8, 2005, Sao Paulo, Brazil.
- \*Latash M.L. Motor synergies in healthy and impaired movements. A mini-course (6 hours). XVI Congress of Brazilian Physical Therapists, October 5-8, 2005, Sao Paulo, Brazil.
- \*Latash M.L. Preparation of a multi-element system to action and perturbation: Anticipatory synergy adjustments. Conference “Motor Control and Cognitive Neuroscience”, Abstracts, p. 16, December 7-9. 2005, Dunedin, New Zealand.
- \*Latash M.L. Anticipatory synergy adjustments in preparation to action and perturbation. National Institutes of Health, December 19, 2005, Washington, D.C.

### 2006

- \*Latash M.L. Uncontrolled manifold hypothesis: Studies of postural and prehensile synergies. Weizmann Institute of Science, March 9, 2006, Rehovot, Israel.
- \*Latash M.L. Anticipatory synergy adjustments. Ben Gurion University of the Negev, March 6, 2006, Beer-Sheva, Israel.
- \*Latash M.L. The uncontrolled manifold hypothesis: Studies of prehension. McGill University, March 23, 2006, Montreal, Canada.
300. \*Latash M.L. Equilibrium-point control of unimpaired and impaired movements. The First International Conference on Health Promotion, p. 1, May 19-20, 2006, Taipei, Taiwan.
- \*Latash M.L. Contemporary approaches to analysis of motor synergies: The uncontrolled manifold hypothesis. The First International Conference on Health Promotion, p. 2-3, May 19-20, 2006, Taipei, Taiwan.
- \*Latash M.L. Changes in motor synergies with practice. The First International Conference on Health Promotion, p. 3, May 19-20, 2006, Taipei, Taiwan.
- \*Latash M.L. Motor coordination in persons with Down syndrome. The First International Conference on Health Promotion, p. 4-5, May 19-20, 2006, Taipei, Taiwan.
- Latash M.L., Danna Dos Santos A., Slomka K. Uncontrolled manifold analysis of multi-muscle synergies. Fourth International Posture Symposium, p. 40, June 25-28, 2006, Smolenice Castle, Slovakia.
- Latash M.L. Director. Third Motor Control Summer School, July 14-17, 2006, Ligonier, PA.
- Latash M.L. The uncontrolled manifold hypothesis. Third Motor Control Summer School, July 14-17, 2006, Ligonier, PA.
- Shim JK, Latash ML, Zatsiorsky VM. Multi-digit maximum voluntary torque production on a circular object. 5th World Congress of Biomechanics. July 29 – August 4, 2006, Munich, Germany.

- \*Latash M.L. The uncontrolled manifold hypothesis: Studies of the human hand. Cognitive Science Summer Institute, Abstracts, p. 17, August 7-11, 2006, Minneapolis, MN.
- \*Latash M.L. Control of multi-effector systems. Simon Fraser University, August 22, Burnaby, Canada.
310. \*Latash M.L. Learning motor synergies by persons with Down syndrome. 9<sup>th</sup> World Down Syndrome Congress, August 22-26, 2006, Vancouver, Canada, Down Syndrome Quarterly **8**: 48.
- Park J., Zatsiorsky V.M., Latash M.L., Shim J.K. Adjustments of prehension synergies in response to self-triggered and experimenter-triggered load and torque perturbations. Annual Meeting of the American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA.
- Olafsdottir H., Zhang W., Zatsiorsky V.M., Latash M.L. Age related changes in multi-finger coordination during moment of force production tasks. Annual Meeting of the American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA.
- Gorniak S., Zatsiorsky V.M., Latash M.L. Between- and within-hand synergies during two-hand force production tasks. Annual Meeting of the American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA.
- Zhang W., Sainburg R.L., Zatsiorsky V.M., Latash M.L. Hand difference in multi-finger quick force pulse production. Annual Meeting of the American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA.
- Kim S.W., Shim J.K., Zatsiorsky V.M., Latash M.L. Kinetic finger interdependence in a kinematic task. Annual Meeting of the American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA.
- Huang J., Latash M.L., Zatsiorsky V.M., Shim J.K. Multi-digit manipulation of a circular object. Annual Meeting of the American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA.
- \*Latash M.L. Hierarchies of synergies. University of Illinois, October 5, 2006, Chicago, IL.
- Burdet L., Raptis H., Tunik E., Latash M.L., Forget R., Feldman A.G. Threshold control of wrist movements revealed by transcranial magnetic stimulation of the motor cortex. Annual Meeting of the Society for Neuroscience, October 14-18, 2006, Atlanta, GA.
- Olafsdottir H.B., Zhang W., Zatsiorsky V.M., Latash M.L. Effects of aging on multi-finger coordination in moment of force production tasks. Annual Meeting of the Society for Neuroscience, October 14-18, 2006, Atlanta, GA.
320. Zhang W., Latash M.L. Multi-finger synergies in stationary and nonstationary tasks with accurate production of moment of force. Annual Meeting of the Society for Neuroscience, October 14-18, 2006, Atlanta, GA.
- Gorniak S.L., Zatsiorsky V.M., Latash M.L. Between- and within-hand synergies during one- and two-hand force production tasks. Annual Meeting of the Society for Neuroscience, October 14-18, 2006, Atlanta, GA.
- Latash M.L. Multi-element synergies in a variety of state spaces. Seventh International Seminar on Speech Production. December 13-15, 2006, Ubatuba, Brazil.
- Latash M.L. Hierarchies of synergies: Hand function. University of San Paulo, December 18, 2006, San Paulo, Brazil.

### 2007

- Latash M.L., Gorniak S., Zatsiorsky V.M. Hierarchies of synergies in hand action. Coordination Dynamics 2007, Abstracts, p. 32-33, February 22-25, 2007, Boca Raton, FL.
- \*Latash M.L. The uncontrolled manifold hypothesis and motor learning. McGill University, March 8, 2001, Montreal, Canada.
- Latash M.L. Editorial. Motor Control **11**: 107-108.
- \*Latash M.L., Danna-Dos-Santos A., Zatsiorsky V.M. Uncontrolled manifold analysis of postural tasks. Tutorial. NorthEast American Society of Biomechanics Conference, March 30-31, 2007, College Park, MD.
- Zhang W., Latash M.L., Zatsiorsky V.M. Multi-finger synergies in stationary and non-stationary

- tasks with moment of force production. NorthEast American Society of Biomechanics Conference 2007, Abstract#2, March 30-31, 2007, College Park, MD.
- Danna-Dos-Santos A., Degani A.M., Latash M.L. Anticipatory postural adjustments in head control. NorthEast American Society of Biomechanics Conference 2007, Abstract#14, March 30-31, 2007, College Park, MD.
330. Olafsdottir H., Kim S.W., Zatsiorsky V.M., Latash M.L. Anticipatory synergy adjustments in preparation to self-triggered perturbations. NorthEast American Society of Biomechanics Conference 2007, Abstract#33, March 30-31, 2007, College Park, MD.
- Budgeon M.K., Latash M.L. Zatsiorsky V.M. Prehension synergies for grasps when the number of grasping fingers changes. NorthEast American Society of Biomechanics Conference 2007, Abstract#35, March 30-31, 2007, College Park, MD.
- Gorniak S., Zatsiorsky V.M., Latash M.L. Emerging and disappearing synergies in a hierarchically controlled system. NorthEast American Society of Biomechanics Conference 2007, Abstract#36, March 30-31, 2007, College Park, MD.
- \*Latash M.L. Hierarchical control of the human hand. University of Pittsburgh, April 6, 2007. Pittsburgh, PA.
- \*Latash M.L. Movement: Control, coordination, and learning. An Intensive Course. Lithuanian Academy of Physical Education, May 16-18, 2007, Kaunas, Lithuania.
- \*Latash M.L. Multi-muscle synergies in postural tasks. Institute of Problems of Information Transmission, May 24, 2007, Moscow, Russia.
- \*Latash M.L. Anticipatory synergy adjustments. Institute of the Higher Nervous Activity and Neurophysiology. May 30, 2007, Moscow, Russia.
- \*Latash M.L. Learning multi-muscle postural synergies. XX-th Congress of the Pavlov Physiological Society, June 4-8, 2007, Moscow, Russia.
- \*Latash M.L. Control of a redundant system: Philosophy, computations, and experiment. Institute of Medical and Biological Problems, June 13, 2007, Moscow, Russia.
- Latash M.L. Director. Fourth Motor Control Summer School, June 21-25, 2007, Ligonier, PA.
340. Latash M.L. Postural synergies. Fourth Motor Control Summer School, June 21-25, 2007, Ligonier, PA.
- \* Latash M.L. Learning motor coordination in Down syndrome. UNINOVE University, August 8, 2007, Sao Paulo, Brazil.
- \*Latash M.L. No. We do not need internal models. Progress in Motor Control-VI, August 9-12, 2007, Santos, Brazil, Motor Control 11 Supplement: S10-S11.
- Danna-Dos-Santos A., Degani A.M., Latash M.L. Anticipatory postural adjustments in head control. Progress in Motor Control-VI, August 9-12, 2007, Santos, Brazil, Motor Control 11 Supplement: S149.
- Danna-Dos-Santos A., Slomka K., Zatsiorsky V.M., Latash M.L. Organization of muscle modes and synergies during voluntary body sway. Progress in Motor Control-VI, August 9-12, 2007, Santos, Brazil, Motor Control 11 Supplement: S143.
- Goodman S.R., Latash M.L. Dependence of task performance accuracy upon the number of degrees of freedom at the effector level. Progress in Motor Control-VI, August 9-12, 2007, Santos, Brazil, Motor Control 11 Supplement: S46.
- Gorniak S., Latash M.L., Zatsiorsky V.M. Emerging and disappearing synergies in a hierarchically controlled system. Progress in Motor Control-VI, August 9-12, 2007, Santos, Brazil, Motor Control 11 Supplement: S71.
- Olafsdottir H., Kim S.W., Zatsiorsky V.M., Latash M.L. Age-related changes in the feed-forward control of multi-element systems. Progress in Motor Control-VI, August 9-12, 2007, Santos, Brazil, Motor Control 11 Supplement: S123-S124.
- Zhang W., Scholz J.P., Zatsiorsky V.M., Latash M.L. Moment of force stabilization within a task that requires stabilization of the total force during multi-finger isometric tasks. Progress in

Motor Control-VI, August 9-12, 2007, Santos, Brazil, Motor Control 11 Supplement: S128-S129.

Robert T., Duarte M., Latash M.L., Zatsiorsky V.M. Rambling-trembling decomposition in two dimensions. Annual Conference of the American Society of Biomechanics, August 23-25, 2007, Stanford University, CA.

350. Kim S.W., Zatsiorsky V.M., Latash M.L. Reference hand configurations during grip force adjustments. Annual Conference of the American Society of Biomechanics, August 23-25, 2007, Stanford University, CA.

Zhang W., Scholz J.P., Zatsiorsky V.M., Latash M.L. Simultaneous performance of two tasks by the fingers of the human hand. Annual Conference of the American Society of Biomechanics, August 23-25, 2007, Stanford University, CA.

Budgeon K.M., Latash M.L., Zatsiorsky V.M. Prehension synergies: Effects of finger manipulation. Annual Conference of the American Society of Biomechanics, August 23-25, 2007, Stanford University, CA.

Niu X., Latash M.L., Zatsiorsky V.M. Prehension of the objects with complex friction patterns. Annual Conference of the American Society of Biomechanics, August 23-25, 2007, Stanford University, CA.

\*Latash M.L. Motor control – the heart of kinesiology. 77<sup>th</sup> Annual Meeting of the American Academy of Kinesiology and Physical Education, September 27-29, 2007, Savannah, GA.

\*Ulrich D., Latash M.L., Wood L. Issues in motor development. Down Syndrome Research Directions 2007 Symposium, October 23-27, 2007, Portsmouth, UK.

Degani A.M., Robert T., Danna-Dos-Santos A., Latash M.L. Kinematic synergies during gaze shift involving whole-body rotation. 2007 Annual Meeting of the Society for Neuroscience, Poster 178.1/KK7, November 3-7, 2007, San Diego, CA.

## 2008

Corcos D.M., Rymer W.Z., Rothwell J., Hasan Z., Semmlow J., Latash M.L. Reflexes and voluntary movement: The legacy of Gerald Gottlieb. 18<sup>th</sup> Annual Meeting “Neural Control of Movement”, Abstracts, v. 13, p. 11, April 29 – May 3, 2008, Naples, FL.

Friedman J., Latash M.L., Zatsiorsky V.M. Patterns of finger force-sharing when grasping a handle with a variable load and constant external torque. 18<sup>th</sup> Annual Meeting “Neural Control of Movement”, Abstracts, v. 13, p. 60-61, April 29 – May 3, 2008, Naples, FL.

Latash M.L., Niu X., Zatsiorsky VM. Multi-finger prehension synergy: Exploration with transcranial magnetic stimulation. Eurohaptics-2008, June 9-14, 2008, Madrid, Spain.

360. \*Latash M.L. Discussion of coordination dynamics. A Natural-Physical Perspective on Perception-Cognition-Action, June 19-21, 2008, University of Connecticut, Storrs.

Latash M.L. Co-Director. Fifth Motor Control Summer School, July 11-15, 2008, Val-des-Lacs, Quebec, Canada.

Latash M.L. Hierarchies of synergies in human movements. Fifth Motor Control Summer School, July 11-15, 2008, Val-des-Lacs, Quebec, Canada.

Niu X., Zatsiorsky V.M., Latash M.L. Stability of multi-finger prehension synergy: Exploration with transcranial magnetic stimulation. North American Congress on Biomechanics, Abstract #326, August 5-9, 2008, Ann Arbor, MI.

Zhang W., Zatsiorsky V.M., Latash M.L. Synergy hierarchies during accurate rotation tasks. North American Congress on Biomechanics, Abstract #451, August 5-9, 2008, Ann Arbor, MI.

Martin J., Latash M.L., Zatsiorsky V.M. Inverse piano technique for studying finger interaction during pressing tasks. North American Congress on Biomechanics, Abstract #90, August 5-9, 2008, Ann Arbor, MI.

Niu X., Latash M.L., Zatsiorsky V.M. Grasping force magnitude affects the force sharing pattern in multi-finger prehension. North American Congress on Biomechanics, Abstract #327, August 5-9, 2008, Ann Arbor, MI.

Gorniak S., Zatsiorsky V.M., Latash M.L. Hierarchical synergies in bimanual prehension. North

- American Congress on Biomechanics, Abstract #224, August 5-9, 2008, Ann Arbor, MI.
- Friedman J., Latash M.L., Zatsiorsky V.M. Grasping a handle with constant external torque and variable load. North American Congress on Biomechanics, Abstract #194, August 5-9, 2008, Ann Arbor, MI.
- \*Latash M.L. Multi-muscle synergies in postural tasks. Pre-Conference School, 5<sup>th</sup> International Scientific Conference on Kinesiology, September 8-10, 2008, Zagreb, Croatia.
370. \*Latash M.L., Gorniak S., Zatsiorsky V.M. Hierarchies of synergies in human movements. Proceedings of the 5<sup>th</sup> International Scientific Conference on Kinesiology, p. 66-74, September 11-14, 2008, Zagreb, Croatia.
- \*Latash M.L. From reflexes and motor programs to the equilibrium-point hypothesis. Motor Control – 2008: From Theories to Clinical Applications, Abstracts, p. 11, September 18-21, Zakopane, Poland.
- \*Latash M.L. Recent explorations of the multi-muscle postural control. University of Illinois at Chicago, October 20, 2008.
- \*Latash M.L. Hierarchical control of natural human movements. Arizona State University, October 22, 2008, Tempe, AZ.
- \*Latash M.L. What is the purpose of motor synergies? Barrow Neurological Institute, October 23, 2008, Phoenix, AZ.
- Gorniak S., Zatsiorsky V.M., Latash M.L. Synergies at two hierarchical levels during one- and two-person static prehension tasks. 38-th Annual Meeting of the Society for Neuroscience, Abstract # 77.6, November 15-19, Washington, D.C.
- Gera G., Latash M.L., Scholz J.P. The use of motor redundancy to resolve multiple task constraints simultaneously. 38-th Annual Meeting of the Society for Neuroscience, Abstract, November 15-19, Washington, D.C.
- \*Latash M.L. The uncontrolled manifold hypothesis and multi-digit synergies in young and elderly persons. Brandeis University, November 20, 2008.
- \*Latash M.L. Interactions between levels of a control hierarchy. Northeastern University, November 21, 2008, Boston, MA.
- Latash M.L., Mikielien I.L. Linear and logarithmic speed-accuracy trade-offs in speech production. In: Sock R., Fuchs S., Laprie Y. (Eds.) Proceedings of the 8<sup>th</sup> International Seminar on Speech Production, p. 85-88, December 8-12, 2008, Strasbourg, France.
380. \*Latash M.L. How the uncontrolled manifold hypothesis helps to understand multi-muscle postural synergies. University of Saarbrücken, December 12, 2008, Saarbrücken, Germany.
- 2009**
- \*Latash M.L. Effects of practice on typical and atypical motor synergies. 9<sup>th</sup> Motor Control and Human Skill Conference, Abstracts, p. 19-20, January 28-31, Hobarth, Tasmania.
- \*Latash M.L. Hierarchies of synergies and the equilibrium-point hypothesis. Rehabilitation Institute of Chicago, March 11, 2009, Chicago, IL.
- Latash M.L. Director. Sixth Motor Control Summer School. Antiochian Village, May 28 – June 1, 2009; Ligonier, PA.
- Latash M.L. Hierarchical control of prehension. Sixth Motor Control Summer School. Antiochian Village, May 28 – June 1, 2009; Ligonier, PA.
- Latash M.L. Equilibrium-point control and prehension synergies. Israel Motor Days in Jerusalem, Abstracts, p. 24, June 7-10, 2009; Jerusalem, Israel.
- Friedman J., Latash M.L., Zatsiorsky V.M. Control and variability of isometric forces generated by the arm. The Fifth Computational Motor Control Workshop at Ben Gurion University of the Negev, Abstracts, p. , June 11-12, 2009, Beer-Sheva, Israel.
- \*Latash M.L. Hierarchical control of the human hand and the equilibrium-point hypothesis. University of Verona, June 17, 2009, Verona, Italy.
- Latash M.L., Aruin A.S. Two functions of the anticipatory postural adjustments. Basic Mechanisms Underlying Balance Control under Static and Dynamic Conditions, Abstracts, p. 38, June 19-20,

- 2009, Pavia, Italy.
- Latash M.L., Ivanenko Y. Does the equilibrium-point hypothesis help understand postural synergies? Yes-No Debate. Proceedings of the XIX Conference of the International Society for Posture and Gait Research, p. 40, June 21-25, 2009, Bologna, Italy.
390. Latash M.L. Hierarchical synergic control of posture. Proceedings of the XIX Conference of the International Society for Posture and Gait Research, p. 274-275, June 21-25, 2009, Bologna, Italy.
- \*Latash M.L. Referent configurations and hierarchies of synergies. INRETS, June 21, 2009, Lyon, France.
- \*Latash M.L. Two aspects of feed-forward adjustments prior to voluntary action. Progress in Motor Control-VI, Abstracts, p. 12, June 23-26, 2009, Marseille, France.
- Gorniak S.L., Zatsiorsky V.M., Latash M.L. Biomechanics and multi-digit synergies during transport of a fragile object. Progress in Motor Control-VI, Abstract O1-6, June 23-26, 2009, Marseille, France.
- Klous M., Danna-Dos-Santos A., Latash M.L. Organization of multi-muscle synergies in a dual task involving voluntary body sway. Progress in Motor Control-VI, Abstract A2-49, June 23-26, 2009, Marseille, France.
- Bertucco M., Cesari P., Latash M.L. Fitts' law in anticipatory postural adjustments. Progress in Motor Control-VI, Abstract A2-51, June 23-26, 2009, Marseille, France.
- Olafsdottir H.B., Zatsiorsky V.M., Latash M.L. The effects of strength training on finger strength and coordination in healthy elderly individuals. Progress in Motor Control-VI, Abstract A3-14, June 23-26, 2009, Marseille, France.
- Slota G.P., Latash M.L., Zatsiorsky V.M. Prehension control of objects with complex geometry. Progress in Motor Control-VI, Abstract A3-15, June 23-26, 2009, Marseille, France.
- Martin J, Latash M.L., Zatsiorsky V.M. Effect of modulation of the internal forces on digit coordination during multi-finger object prehension. Annual Meeting of the American Society of Biomechanics, Abstract 720, August 26-29, 2009, State College, PA.
- Niu X., Terekhov A.V., Pesin Y.B., Latash M.L., Zatsiorsky V.M. Inverse optimization of digit forces in multi-finger prehension based on analytical determination of the objective function. Annual Meeting of the American Society of Biomechanics, Abstract 791, August 26-29, 2009, State College, PA.
400. Shapkova E.Yu., Terekhov A.V., Latash M.L. Arm motion coupling during locomotion-like actions: An experimental study and a dynamic model. Annual Meeting of the American Society of Biomechanics, Abstract 797, August 26-29, 2009, State College, PA.
- Kapur S., Friedman J., Zatsiorsky V.M., Latash M.L. Finger enslaving in a three-dimensional pressing task. Annual Meeting of the American Society of Biomechanics, Abstract 810, August 26-29, 2009, State College, PA.
- Gorniak S.L., Zatsiorsky V.M., Latash M.L. Biomechanics of transport of a fragile object. Annual Meeting of the American Society of Biomechanics, Abstract 812, August 26-29, 2009, State College, PA.
- SKM V., Friedman J., Zatsiorsky V.M., Latash M.L. Sources of two components of variance in multifinger cyclic force production tasks. Annual Meeting of the American Society of Biomechanics, Abstract 822, August 26-29, 2009, State College, PA.
- Slota G., Latash M.L., Zatsiorsky V.M. Prehension strategies for grasping objects with complex geometry. Annual Meeting of the American Society of Biomechanics, Abstract 825, August 26-29, 2009, State College, PA.
- Klous M., Danna-dos-Santos A., Latash M.L. Multi-muscle synergies in a dual task. Annual Meeting of the American Society of Biomechanics, Abstract 1230, August 26-29, 2009, State College, PA.
- SKM V., Friedman J., Zatsiorsky V.M., Latash M.L. Sources of a component of variance in multifinger force production tasks. Annual Meeting of the Society for Neuroscience, Abstract

- 862.6, October 17-21, 2009, Chicago, IL.
- Latash M.L., Friedman J., Kim S., Feldman A.G., Zatsiorsky V.M. Prehension synergies produced by control with referent configurations. Annual Meeting of the Society for Neuroscience, Abstract 862.9, October 17-21, 2009, Chicago, IL.
- Gera G., Freitas S.M., Latash M.L., Scholz J.P. The control of hand position and hand-target orientation during reaching. Annual Meeting of the Society for Neuroscience, Abstract 355.9, October 17-21, 2009, Chicago, IL.
- \*Latash M.L. Tonic stretch reflex: The most common module in the CNS. A Symposium to Honor the Career and Accomplishments of James C. Houk, Ph.D., October 22, 2009, Chicago, IL.
410. \*Latash M.L. Workshop on the uncontrolled manifold hypothesis. Georgia Tech University, November 9, 2009, Atlanta, GA.
- \*Latash M.L. Hierarchical control of the human hand. Georgia Tech University, November 11, 2009, Atlanta, GA.
- Latash M.L. Israel Gelfand – a great biologist. Memorial Conference Dedicated to Israel M. Gelfand, Rutgers University, December 6, 2009, New Brunswick, NJ.
- 2010**
- \*Latash M.L. Multi-digit synergies and their changes with age. Texas A&M University, March 25, 2010, College Station, TX.
- \*Latash M.L. Using the framework of the uncontrolled manifold hypothesis to explore motor synergies. A workshop. Texas A&M University, March 26, 2010, College Station, TX.
- \*Latash M.L. Effects of age and fatigue on multi-digit synergies. University of Illinois at Chicago, April 30, 2010, Chicago, IL.
- \*Latash M.L. Multi-digit synergies: Effects of age and fatigue. Keynote lecture. 7<sup>th</sup> Annual Biomechanics Research Symposium, University of Delaware, May 7, 2010, Newark, DE.
- \*Latash M.L. Learning motor synergies. Sensori-Motor Interaction Seminar, Aalborg University, May 11, 2010, Aalborg, Denmark.
- \*Latash M.L. Two components of variance in cyclic and discrete tasks. Institute of Higher Nervous Activity and Neurophysiology, June 10, 2010, Moscow, Russia.
- \*Latash M.L. Kinematic synergies during saccades involving whole-body rotation. Institute for Problems of Information Transmission, June 15, 2010, Moscow, Russia.
420. \*Latash M.L. Simple information transmission with different natural languages. Institute for Problems of Information Transmission, June 16, 2010, Moscow, Russia.
- \*Latash M.L. Effects of practice on typical and atypical motor synergies. Lesgaft Institute of Physical Culture, June 18, 2010, St. Petersburg, Russia.
- \*Latash M.L. Motor control: Past, present, and future. Academy of Physical Education, June 22, 2010, Katowice, Poland.
- Niu X., Terekhov A.V., Latash M.L., Zatsiorsky V.M. Analytical inverse optimization of finger forces in multi-finger prehension. 10th Annual New Technology In Upper Extremity Surgery-The Cutting Edge; 7th Triennial International Hand And Wrist Biomechanics Symposium, June 20-23, 2010, Cleveland, OH.
- Martin J.R., Latash M.L. Zatsiorsky V.M. Patterns of finger interaction documented using the 'Inverse piano' method. 10th Annual New Technology In Upper Extremity Surgery-The Cutting Edge; 7th Triennial International Hand And Wrist Biomechanics Symposium, June 20-23, 2010, Cleveland, OH.
- Latash M.L. Co-Director. Seventh Motor Control Summer School. Gawra Hotel, June 24-29, 2010; Wisla, Poland.
- Latash M.L. Uncontrolled manifold hypothesis as a tool to study motor coordination. Seventh Motor Control Summer School. Gawra Hotel, June 25, 2010; Wisla, Poland.
- Latash M.L. Changes in multi-digit synergies with healthy aging and with practice. Pittsburgh University, August 18, 2010.
- Latash M.L. Effects of fatigue on multi-element synergies. Systems Neuroscience Institute,

- Pittsburgh University, August 19, 2010.
- Singh T., Zatsiorsky V.M., Latash M.L. Adaptive changes in finger force variance in response to index finger fatigue in a multi-finger task. Annual Meeting of the American Society of Biomechanics, August 18-21, 2010, Providence RI.
430. Slota G.P., Latash M.L., Zatsiorsky V.M. Prehension control while performing circular arm movements. Annual Meeting of the American Society of Biomechanics, August 18-21, 2010, Providence RI.
- Martin J.R., Budgeon M.K., Zatsiorsky V.M., Latash M.L. Stabilization of the total force in multi-finger pressing tasks studied with the “inverse piano” technique. Annual Meeting of the American Society of Biomechanics, August 18-21, 2010, Providence RI.
- Niu X., Terekhov A.V., Latash M.L., Zatsiorsky V.M. Planarity of force distribution in a 4-finger force space during multi-finger prehension and its implication for inverse optimization. Annual Meeting of the American Society of Biomechanics, August 18-21, 2010, Providence RI.
- \*Latash M.L. Neural control of movement: Current hypotheses. International Congress on Complex Systems in Medicine and Sport, September 14-18, Kaunas, Lithuania.
- \*Latash M.L. Uniting the equilibrium-point hypothesis and the uncontrolled manifold concept. International Congress on Complex Systems in Medicine and Sport, September 14-18, Kaunas, Lithuania.
- \*Latash M.L. Redundant multi-element systems: Effects of aging and fatigue. University of Illinois at Chicago, October 22, 2010.
- SKM V., Zhang W., Zatsiorsky V.M., Latash M.L. Age related differences in finger interaction during accurate object rotation. Society for Neuroscience Annual Meeting, November 13-17, 2010, San Diego, CA.
- Klous M., Mikulic P., Latash M.L. Feedforward control of human posture. Society for Neuroscience Annual Meeting, November 13-17, 2010, San Diego, CA.
- Singh T., Zatsiorsky V.M., Latash M.L. Effect of fatigue on finger force variance in a two-finger pressing task. Society for Neuroscience Annual Meeting, November 13-17, 2010, San Diego, CA.
- Klishko A.N., Farrell B.J., Latash M.L., Prilutsky B.I. Paw trajectories of cat fore- and hindlimbs are stabilized during swing of walking on a flat surface and horizontal ladder. Society for Neuroscience Annual Meeting, November 13-17, 2010, San Diego, CA.
- 2011**
440. \*Latash M.L. Basic research and its implications for health. University of Delaware, February 18, 2011, Newark, DE.
- \*Latash M.L. Feed-forward control of posture. University of Florida, March 3, 2001, Gainesville, FL.
- \*Latash M.L. Optimization and variability in multi-element actions. University of Florida, March 4, 2001, Gainesville, FL.
- Latash M.L. Director. Eighth Motor Control Summer School. The Antiochian Village, Ligonier, PA, June 9-13, 2011.
- \*Latash M.L. Feed-forward control of posture. Eighth Motor Control Summer School. The Antiochian Village, Ligonier, PA, June 9-13, 2011.
- \*Latash M.L. Neural control of movement: Current hypotheses. Academy of Physical Education, Katowice, Poland, June 16, 2011.
- \*Latash M.L. Optimization and variability in multi-element actions. Academy of Physical Education, Katowice, Poland, June 17, 2011.
- \*Latash M.L. Effects of practice on motor synergies. Academy of Physical Education, Wroclaw, Poland, June 20, 2011.
- \*Latash M.L. What is motor control. Bogomolets Institute of Physiology, Kiev, Ukraine, June 23, 2011.
- Krishnan V., Aruin A.S., Latash M.L. Two stages of feed-forward postural control: Early and late postural adjustments. Progress in Motor Control VIII, Poster 133, Cincinnati, OH, July 21-23,

2011.

450. Park J., Zatsiorsky V.M., Latash M.L. Analytical inverse optimization (ANIO) approach to atypical digit coordination. Progress in Motor Control VIII, Poster 234, Cincinnati, OH, July 21-23, 2011.
- Singh T., Zatsiorsky V.M., Latash M.L. Effects of unilateral fatigue of ankle dorsiflexors on muscle synergies during voluntary body sway. Progress in Motor Control VIII, Poster 244, Cincinnati, OH, July 21-23, 2011.
- Terekhov A., Niu X., Latash M.L., Zatsiorsky V.M. The same cost function explains normal force distribution in four- and three-finger grasps. Progress in Motor Control VIII, Poster 252, Cincinnati, OH, July 21-23, 2011.
- Latash M.L., Aruin A.S., Klous M., Krishnan V., Mikulic P. Feed-forward postural adjustment to action. 6-th International Scientific Conference on Kinesiology, Proceedings, p. 163, Opatija, Croatia, September 8-11, 2011.
- Latash M.L. Writing papers for movement science journals. University of Zagreb, Zagreb, Croatia, September 12, 2011.
- Latash M.L. Multi-muscle postural synergies”, University of Bratislava, Bratislava, Slovak Republic, September 14, 2011.
- Latash M.L., Klous M., Aruin A.S., Krishnan V. Two aspects of the feed-forward control of vertical posture. 6-th International Posture Symposium, Abstracts, p. 55, Smolenice, Slovak Republic, September 15-18, 2011.
- Shapkova E.Yu., Klous M., Terekhov A.V., Latash M.L. The initiation of locomotor-like movements by muscle vibration and passive arm manipulation in humans. 6-th International Posture Symposium, Abstracts, p. 80, Smolenice, Slovak Republic, September 15-18, 2011.
- Park J., Huang X., Lewis M., Wu Y.-H., Sun Y., Latash M.L. Anticipatory covariation of finger forces during self-paced force production in individuals with Parkinson’s disease. Society for Neuroscience Annual Meeting, Poster 185.08, November 12-16, 2011, Washington, D.C.
- Klous M., Mikulic P., Latash M.L. Early postural adjustments in quick voluntary shifts of the center of pressure. Society for Neuroscience Annual Meeting, Poster 813.01, November 12-16, 2011, Washington, D.C.
460. Singh T., Park J., Zatsiorsky V.M., Latash M.L. Changes in optimization and variability in redundant multi-finger tasks induced by fatigue of a finger. Society for Neuroscience Annual Meeting, Poster 814.17, November 12-16, 2011, Washington, D.C.
- Latash M.L. Optimization and variability in redundant motor systems. Université Paris-Sud, December 15, 2011, Orsay, France.
- Latash M.L. Multi-element synergies studies within the uncontrolled manifold hypothesis. Institut des Systèmes Intelligents et de Robotique, Université Pierre et Marie Curie, December 16, 2011, Paris, France.

## 2012

- Latash M.L., Johnston J. (2012) Why did Grandpa drop the glass? Editorial. Journal of Applied Physiology, (in press).