

## CURRICULUM VITAE

### ALEXANDER S. ARUIN

#### EDUCATION

- D.Sc. (Ph.D.) in Biomechanics, Institute of Traumatology and Orthopedics, Latvia, 1990
- M.S. in Exercise and Sport Science, Central Institute of Physical Culture, USSR, 1982
- Ph.D. in Biological and Medical Cybernetics (Biomedical Engineering), Institute of Artificial Organs and Transplantation, Moscow, USSR, 1978
- M.S. in Electrical Engineering, Moscow Institute of Electronic Engineering, USSR 1969

#### PROFESSIONAL INFORMATION

- Associate Professor, Director of the Knecht Movement Science Laboratory, Department of Physical Therapy. University of Illinois at Chicago, 2000 to present
- Associate Professor, Department of Bioengineering, University of Illinois at Chicago, 2000 to present
- Member, Interdisciplinary PhD Program in Disability Studies. College of Applied Health Sciences, University of Illinois at Chicago, 2000 to present
- Associate Professor, School of Kinesiology, University of Illinois at Chicago, 2003 to present
- Preceptor, MD/PhD Training Program University of Illinois at Chicago, 2003 – present
- Core faculty member, Interdisciplinary Training Program in Neuroscience. University of Illinois at Chicago, 2003 to present
- Senior Research Scientist/Director of the Motion Analysis Laboratory. Rehabilitation Foundation, Inc., Marianjoy Rehabilitation Hospital and Clinics, Wheaton, Illinois, 1997 to 2000
- Associate Professor, Department of Physical Medicine & Rehabilitation. Rush Medical College, Chicago, Illinois, 1997 to present
- Senior Scientist (full professor rank). Department of Kinesiology, Pennsylvania State University, Pennsylvania, 1995 - 1997
- Assistant Professor. Department of Physical Medicine & Rehabilitation Rush-Presbyterian St. Luke's Medical Center, Chicago, Illinois, 1992 - 1995
- Full Professor, Deputy Chairman, Department of Exercise and Sport Science, and Director of the Laboratory of Ergonomic (Occupational) Biomechanics. Moscow Institute of Electronic Engineering, Moscow, 1990-1992
- Associate Professor, Deputy Chairman on Research, Department of Exercise and Sport Science, and Director of the Laboratory of Ergonomic (Occupational) Biomechanics. Moscow Institute of Electronic Engineering, Moscow, 1982-1990
- Assistant Professor, Research Associate. Department of Exercise and Sport Science.

Moscow Institute of Electronic Engineering, USSR, 1969-1982

### HONORS AND AWARDS

- International Development Fund Award, John Nuveen Center for International Affairs, 2002
- Faculty Foreign Travel Award, UIC, 2002
- Silver Medal of the Russian Academy of Natural Sciences for the Achievements in Medicine and Public Health, 2000
- NIH First Independent Research Award, 1998
- The Finest Inventor of the City of Moscow, USSR, 1987
- Gold Medal. All-USSR Competition in Research in Sports, 1982
- Gold Medal of the USSR Department of Higher Education for the Direction of the best Student Thesis Project in the Natural, Technical, and Social Fields, 1977
- Silver and Bronze Medals. National Exhibition for New Investigations of Human Movements, USSR, 1974, 1981

### RESEARCH SERVICE

Ad-hoc member: NIH Study Section-Geriatrics and Rehabilitation Medicine, 2000

### PUBLICATIONS

\* refers to invited publications

1. **Aruin A.** Support-specific modulation of grip force in individuals with hemiparesis. Archives of Physical Medicine and Rehabilitation, (2004) (In press).
2. \***Aruin A.** Biomechanics. Encyclopedia on Disability. (2004) (In press)
3. Shiratori T, **Aruin A.** Anticipatory postural adjustments associated with rotational perturbations while standing on fixed and free-rotating supports. Clinical Neurophysiology. 115:797-806 (2004)
4. **Aruin A**, Shiratori T. The effect of the magnitude of motor action on anticipatory postural adjustments. Journal of Electromyography and Kinesiology. 14: 455-462 (2004)
5. **Aruin A**, Shiratori T. Anticipatory postural adjustments while sitting: the effects of different leg supports, Experimental Brain Research, 151: 46-53 (2003)
6. **Aruin A.**, Hanke T. & Sharma A. Base of support feedback in gait rehabilitation. International Journal of Rehabilitation Research, 26:309-12 (2003)

7. **Aruin A.** The effect of changes in the body configuration on anticipatory postural adjustments, Motor Control, 7: 264-277 (2003)
8. **Aruin A.**, Mayka M. & Shiratori T. Could a motor action that has no direct relation to expected perturbation be associated with anticipatory postural adjustments? Neuroscience Letters, 341: 21-24 (2003)
9. \***Aruin A.** The organization of anticipatory postural adjustments. Journal of Automatic Control, 12: 31-37 (2002)
10. Slijper H., Latash M., Rao N. & **Aruin A.** Task specific modulation of anticipatory postural adjustments in individuals with hemiparesis, Clinical Neurophysiology, 113: 642-655 (2002).
11. Rodriguez G, **Aruin A.** The effect of shoe wedges and shoe lifts on symmetry of stance and weight bearing in hemiparetic individuals, Archives of Physical Medicine and Rehabilitation, 83: 478-483 (2002).
12. \***Aruin A.** The biomechanical foundations of a safe labor environment: Bernstein's vision in 1930, Motor Control, 6: 1-18 (2002).
13. **Aruin A.**, Shiratori T. & Latash M. The role of action in postural preparation for loading and unloading in standing subjects, Experimental Brain Research, 138: 458-466 (2001).
14. **Aruin A.**, Ota T. & Latash M. Anticipatory postural adjustments associated with lateral and rotational perturbations during standing, Journal of Electromyography and Kinesiology, 11: 39-51 (2001).
15. **Aruin A.** Simple lower extremity two-joint synergy, Perceptual and Motor Skills, 92:563-568 (2001).
16. **Aruin A.**, Sharma A, Larkins R. & Chaudhuri G. Knee position feedback: its effect on management of pelvic instability in a stroke patient, Disability & Rehabilitation 22:690-692 (2000).
17. Chaudhuri S., **Aruin A.** Dynamic postural control in individuals with hemiparesis: the effect of compelled weight shift, Archives of Physical Medicine and Rehabilitation, 81: 1498-1503 (2000).
18. \***Aruin A.S.** Sports after Amputation. The Encyclopedia of Sports Medicine: Biomechanics in Sport. Blackwell Science/International Olympic Committee Book, p.637-650 (2000).

19. **Aruin A.**, Hanke T, Chaudhuri G, Harvey R. & Rao N. Compelled weight bearing in patients with hemiparesis following stroke: the effect of a lift insert and goal-directed balance exercise, Journal of Rehabilitation Research and Development, Vol. 37:65-72 (2000).
20. Rao N., **Aruin A.S.** The effect of ankle foot orthosis on balance impairment, Journal of Prosthetics and Orthotics, 11:15-19 (1999).
21. Latash M.L., **Aruin A.S.** & V.M. Zatsiorsky. The basis of a simple synergy: reconstruction of joint equilibrium trajectories during unrestrained arm movements, Human Movement Science, 18: 3-30 (1999).
22. **Aruin A.S.**, Forrest W.R.& Latash M.L. Anticipatory postural adjustment in conditions of postural instability, Electroencephalography and Clinical Neurophysiology, 109: 350-359 (1998).
23. **Aruin A.S.**, Nicholas J.J. & Latash M.L. Anticipatory postural adjustments during standing in below the knee amputees, Clinical Biomechanics, 12: 52-59 (1997).
24. **Aruin A.S.**, Almeida G.L. A coactivation strategy in anticipatory postural adjustment in persons with Down syndrome, Motor Control, 2: 178-191 (1997).
25. **Aruin A.S.** Adaptive changes in postural reactions after unilateral leg amputation, Behavioral and Brain Science. 19: 68-69 (1996).
26. **Aruin A.S.**, Latash M.L. Anticipatory postural adjustments during self-initiated perturbations of different magnitude triggered by standard motor action, Electroencephalography and Clinical Neurophysiology, 101: 497-503 (1996).
27. **Aruin A.S.**, Almeida G.L. & Latash M.L. Organization of a simple two-joint synergy in individuals with Down syndrome, American Journal of Mental Retardation 101:256-268 (1996).
28. **Aruin A.S.**, Neyman I., Nicholas J.J. & Latash M.L. Are there deficits in anticipatory postural adjustments in Parkinson's disease? NeuroReport, 7: 1794-1796 (1996).
29. **Aruin A.S.**, M. L. Latash The role of motor action in anticipatory postural adjustments studied with self-induced and externally triggered perturbations, Experimental Brain Research, 106: 291-300 (1995).
30. Latash M.L., **Aruin A.S.** & Shapiro M. B. The relation between posture and movement: a study of a simple synergy in a two-joint task, Human Movement Science, 14: 79-107 (1995).

31. Shapiro M.B., **Aruin A.S.** & Latash M.L. Velocity-dependent activation of postural muscles in a simple two-joint synergy, Human Movement Science, 14: 351-369 (1995).
32. **Aruin A.S.**, M. L. Latash. Directional specificity of postural muscles in feed-forward postural reactions during fast voluntary arm movements, Experimental Brain Research, 103: 323-332 (1995).
33. Latash M.L., **Aruin A.S.**, Neyman I, Nicholas J.J. & Shapiro M.B. Feed-forward postural adjustments in a simple two-joint synergy in patients with Parkinson's disease, Electroencephalography and Clinical Neurophysiology, 97: 77-89 (1995).
34. Latash M.L., **Aruin A.S.**, Neyman I. & Nicholas J.J. Anticipatory postural adjustments during self-inflicted and predictable perturbations in Parkinson's disease, Journal of Neurology, Neurosurgery & Psychiatry, 58: 326-334 (1995).
35. Almelda 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 (1994).
36. \***Aruin, A.S.** Biomechanical foundations of human environmental design, Teorija i Praktica Fizicheskoj Kulturi 1: 20-23. (In Russian) (1993).
37. **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 (1994).
38. **Aruin, A.S.** Biomechanics of hard physical work, Modern Problems of Biomechanics, 7: 195-211 (1993).
39. Mirtov, J.N., **Aruin, A.S.** New Keyboard: A collection of single control movements. In: Ergonomics and Design of Robotics. pp.43-52, Moscow: Transactions of VNIITE, v.39 (1990).
40. **Aruin, A.S.** Computer-aided design of the work place. pp 1-17, Kiev: Znanie (in Russian) (1990).
41. **Aruin, A.S.**, Zatsiorsky, V.M. & Potjemkin, B.A. Damping of dynamic loads during locomotion. Modern Problems of Biomechanics, 6: 63-78. (1989).
42. **Aruin, A.S.**, Zatsiorsky, V.M., & Prilutsky, B.I. Arms of forces and elongation of the lower extremity muscles at various values of joint angles, Archives of Anatomy, Histology, and Embryo, 6:52- 55 (1988).

43. \***Aruin A.S.** The truth about women's shoe heels, Engineering for youth, 3: 26-28 (in Russian)(1988).
44. Mirtov, J.N., **Aruin, A.S.**: Ergonomic principles of elaboration of an alphanumeric keyboard. pp. 1-27, Moscow: Transactions VINITI, v. 6972 (in Russian) (1988)
45. **Aruin, A.S.**, Prilutsky, B.I. Human body simulation in computer-aided design of workstations, Biology of Sport. 5, Suppl. 1: 199-206 (1988).
46. **Aruin, A.S.**, Zatsiorsky, V.M. & Prilutsky, B.I. The "biomechanical" method used for determining the arms of muscular force, In: B. Johnson (Ed.) Biomechanics Vol X-B, 1117-1121. Human Kinetics Publishers, Champaign, IL (1987).
47. **Aruin, A.S.**, Zatsiorsky, V.M. Perspectives on Development of Ergonomical Biomechanics. Kiev: Znanie (in Russian) (1987)
48. **Aruin, A.S.**, Prilutsky, B.I. Dependence of lengthening of the triceps surae muscle on knee and joint angles, Human Physiology, 13: 105-109 (1987).
49. \*Zatsiorsky, V.M., **Aruin, A.S.** People on the computer screen, Science and Life, 8:54-57 (1987).
50. **Aruin, A.S.**, Zatsiorsky, V.M., Koretsky, A.V. Investigation of shock absorption properties of shoes using vibration tests, Kozevenno-Obuvnaja Promislennost 4:22-23 (in Russian) (1987).
51. **Aruin, A.S.**, Aktov, A.V. & Koretsky, A.B. Shock absorption during locomotions. In: Trends in Human Biomechanics: Research and Application in Medicine and Surgery, 32-38, Riga: LNIITO (in Russian) (1986)
52. \***Aruin, A.S.** Table according to the height, Health, 11: 29-32, (in Russian), (1986).
53. **Aruin, A.S.**: Biomechanics of computer-aided design of workstations. Automation of design of radio electronic equipment. 3: 81-83 (in Russian) (1986).
54. Zatsiorsky, V.M., **Aruin, A.S.** Ergonomic biomechanics, Science and Life 3:14-19 (1985).
55. \***Aruin, A.S.** How to not get tired while cooking, Health, 11: 27-28, (in Russian), (1985).
56. **Aruin, A.S.**, Prilutsky, B.I. The relationship of biomechanical properties of muscles to their ability to utilize elastic deformation energy, Human Physiology, 11: 8-12 (1985).

57. **Aruin, A.S.** Aktuelle probleme der ergonomischen biomechanik. (Actual problems of ergonomic biomechanics), Betriebswirtschaftliche und arbeitswissenschaftliche Aspekte der Automatisierung, 30: 187-190 (In German), 1985
58. \***Aruin, A.S.** Moving without strain, Health, 3: 23-24 (in Russian), (1985).
59. Zatsiorsky, V.M., **Aruin, A.S.**, Prilutsky, B.I., & Chaknasarov, A.I. Determination of arm of the forces exerted by foot muscles using biomechanical methods, Human Physiology, 11: 616-622 (1985).
60. \***Aruin, A.S.** Lifting without strain, Health, 7: 29-31 (in Russian), (1985).
61. Zatsiorsky, V.M., **Aruin, A.S.**, Prilutsky, B.I. & Chaknasarov, A.: Arms of muscular force of the flexor muscles of the foot. Factors Limiting Increased Capacity of Athletes to Work. Moscow, 21-35 (in Russian), (1985).
62. \***Aruin, A.S.**, Salnikova L.S. How to not get tired while doing housework, Health of the People, 120:23-25 (in Greek) (1984).
63. **Aruin, A.S.**, Zatsiorsky, V.M. Biomechanical characteristics of human ankle joint muscles, European Journal of Applied Physiology, 52:400-406 (1984).
64. **Aruin, A.S.**, Zatsiorsky, V.M. Occupational biomechanics of working with a computerized workstation, Moscow: Transactions VINITI, 2599 (in Russian) (1984)
65. **Aruin, A.S.**, Zatsiorsky, V.M. Biomechanics of shoes, Moscow: Transactions VINITI, 5458 (in Russian) (1984)
66. **Aruin, A.S.**, Zatsiorsky, V.M. Ergonomic aspects of biomechanics of man-ground interaction, Moscow: Transactions VINITI, 5533 (in Russian) (1984).
67. **Aruin, A.S.**, Zatsiorsky, V.M. Occupational biomechanics of arm working movements, Moscow: Transactions VINITI, 5684 (in Russian) (1984).
68. \***Aruin, A.S.** Let's talk about walking - How do you do it? Health of the People, 120: 25-26, (in Greek) (1984).
69. **Aruin, A.S.**, Zatsiorsky, V.M. Occupational biomechanics of typing movements, Moscow: Transactions VINITI, 1483 (in Russian) (1984).
70. **Aruin, A.S.** & Zatsiorsky, V.M. Ergonomic biomechanics of walking and running. Moscow: GZOLIFK (in Russian) (1983).

71. Zatsiorsky, V.M., **Aruin, A.S.**, Selujanov, V.N. Mass geometry of the human body (Part I), Teorie und Praxis der Korper Kultur, 6: 416-423 (in German) (1982).
72. Zatsiorsky, V.M., **Aruin, A.S.**, Selujanov, V.N. Mass geometry of the human body (Part II), Teorie und Praxis der Korper Kultur, 7: 533-541 (in German) (1982).
73. Raitsin, L.M., **Aruin, A.S.**, Poltorapavlov, N.V. Method for investigating characteristics of movement of athletes, Teorija i Praktica Fizitjeskoi Kulturi, 12:51-52 (in Russian) (1981).
74. Zatsiorsky, V.M, **Aruin, A.S.**, Raitsin, L.M. & Panovko, G.J. The determination of the equivalent characteristics of the ankle joint muscles using vibration tests. In: G. Bianchi, K. Frolov & A. Oledzki (Eds.) Man Under Vibration: Suffering and Protection, 166-175. Amsterdam, Elsevier Scientific Publishing (1981).
75. Raitsin, L.M., **Aruin, A.S.**, & Balachnichev, V.V. Utilization of optical quantum generators (lasers) for controlling of sports technique, Teorija i Praktica Fizitjeskoj Kulturi, 7:49-51 (in Russian) (1980).
76. **Aruin, A.S.**, Prilutsky, B.I., Raitsin, L.M., & Saveljev, I.A. Biomechanical properties of the muscles and efficiency of movements, Human Physiology, 5: 426-434 (1979).
77. **Aruin, A.S.**, Zatsiorsky, V.M., Panovko, G.J., & Raitsin, L.M. Equivalent biomechanical characteristics of the ankle joint muscles, Human Physiology, 4: 862-868 (1978).
78. **Aruin, A.S.**, Zatsiorsky, V.M., Panovko, G.J., & Raitsin, L.M.: A dynamic model of the human body during vibration. Medical Cybernetics, 3: 261-263. Suchumi, Georgia (1978).
79. **Aruin, A.S.**, Zatsiorsky, V.M. Biomechanical properties of the skeletal muscles, Teorija i Praktica Fizitjeskoj Kulturi, 9: 21-35 (in Russian) (1979).
80. **Aruin, A.S.**, Zatsiorsky, V.M. Determining of damping properties of the foot, Orthopedics, Traumatology and Prosthetics, 6:85- 88 (1978).
81. **Aruin, A.S.**, Zatsiorsky, V.M. & Raitsin, L.M. Biomechanical properties of muscles of the human lower extremities, Teorija i Praktica Fizitjeskoi Kulturi, 9:8-14 (in Russian) (1977).
82. **Aruin, A.S.**, Zatsiorsky, V.M., & Raitsin, L.M. Investigation of the mechanical properties of the human lower extremity muscles. In: Frolov K (Ed.) Influence of Vibration on the Human Body, 129-132, Moscow: Nauka. (in Russian) (1977).

83. Zatsiorsky, V.M, **Aruin, A.S.**, Raitsin, L.M., Prilutsky, B.I. & Selujanov, V.N. Biomechanical characteristics of the human body. In: W. Bauman (Ed.) Biomechanics and Performance in Sports, 71-84, Schomdorf, Hofman Verlag (1977).
84. **Aruin, A.S.**, Volkov, N.I., Zatsiorsky, V.M. The effect of the elastic muscle force on the efficiency of muscle work, Human Physiology, 3: 420-426 (1977).
85. **Aruin, A.S.**, Raitsin, L.M., & Schirkovets, E.A. Method for investigation of the efficiency of muscular work, Teorija i Praktika Fizicheskoj Kulturi, 5:21-23, (in Russian) (1976).

### BOOKS & TEXTBOOKS

1. **Aruin, A.S.**, Zatsiorsky, V.M.: Ergonomicheskaia Biomekhanika (Occupational Biomechanics), Moscow: Maschinostroenie Publishing House, (in Russian) (1989).
2. **Aruin, A.S.**, Zatsiorsky, V.M. & Prilutsky, B.I.: Morphometry of Muscles. Moscow: GZOLIFK, (in Russian) (1988)
3. **Aruin, A.S.**, Zatsiorsky, V.M.: Ergonomic Biomechanics of Exercise and Sport Science Moscow: GZOLIFK, (in Russian) (1985)
4. Zatsiorsky, V.M., **Aruin, A.S.**, Selujanov, V.N.: Biomechanik des Menschlichen Bewegungsapparates. Berlin: Sportverlag, (in German) (1984).
5. Zatsiorsky, V.M., **Aruin, A.S.**, Selujanov, V.N.: Biomechanics of the Human Musculoskeletal System. Moscow: Fizkultura i Sport, (in Russian) (1981).
6. **Aruin, A.S.** & Zatsiorsky, V.M.: Biomechanical Properties of Skeletal Muscles and Tendons. Moscow: GZOLIFK, (in Russian) (1980).

### THESES

1. **Aruin AS.** Biomechanical Foundations of Human Environmental Design. DSc Thesis, Institute of Traumatology and Orthopedics, Latvia, 1990
2. **Aruin AS.** Experimental Study and Modeling of Biomechanical Characteristics of Human Lower Extremities. PhD Thesis, Institute of Artificial Organs and Transplantation, Moscow, USSR, 1978.
3. **Aruin AS.** Apparatus for recognition of spoken words. MS Thesis in Electrical Engineering, Moscow Institute of Electronic Engineering, USSR 1969

## CONFERENCE PAPERS

1. **Aruin A**, Campbell S, Hasan Z, Pai C. Dealing with movement perturbation: Adaptation across the life span” Annual Conference of the American Physical Therapy Association (APTA), Chicago, (2004).
2. **Aruin A**. Support specific modulation of grip force in individuals with hemiparesis. Abstracts of the 64<sup>th</sup> Annual Assembly of American Academy of Physical Medicine & Rehabilitation Chicago, IL (2003)
3. **Aruin A**. Anticipatory postural adjustments: What we know and what we don’t. UIC School of Kinesiology Seminar, October 17, (2003).
4. **Aruin A**. Feedforward postural control: What’s known and what’s not. Third International Conference “From Basic Motor Control to Functional Recovery”, 49-59, Varna, Bulgaria, (2003).
5. Shiratori.T, **Aruin.A.S**. Anticipatory postural adjustments associated with rotational perturbations: standing on fixed and free rotating support. International Conference "Progress in Motor Control" 2003, 116, Caen, France, (2003)
6. **Aruin A**. Development of new technologies for motor rehabilitation. UIC Bioengineering Department Seminar, November 15, 2002.
7. **Aruin A**. Anticipatory postural adjustments: What we know and what we don’t. International Congress Movement, Attention & Perception 2002, 38. Poitiers, France, (2002).
8. **Aruin A.**, Chaudhuri G., Sharma A. Step width feedback in post stroke gait rehabilitation Improving Quality of Life through Applied Research. MRH Research Symposium 2002, Wheaton, IL (2002).
9. **Aruin A.**, Rao N., Latash M., Slijper H. Modulation of anticipatory postural adjustments in individuals with hemiparesis. Rush University Forum for Research and Clinical Investigation 2002, 29, Chicago, IL (2002).
10. **Aruin A**. Compelled weight bearing in stroke rehabilitation: International Conference “From Basic Motor Control to Functional Recovery II”, 393-402, Varna, Bulgaria, (2001).

11. **Aruin A**, The effect of changes in the angular position of the upper body on anticipatory postural: Proceedings of the 11<sup>th</sup> Annual Meeting of the Society of Neural Control of Movement, B-09, Seville, Spain (2001)
12. **Aruin A.S.**, Shiratori T., Latash M.: The role of action in the generation of anticipatory postural adjustments in standing subjects. Abstracts of the 30<sup>th</sup> Annual Meeting Society for Neuroscience, Volume 30, Part 1, p.168, New Orleans, LA (2000).
13. **Aruin A**, Grip forces responses to changes in the provision of support: Proceedings of the 24<sup>th</sup> Annual Meeting of the American Society of Biomechanics, 153-154, Chicago (2000)
14. **Aruin A**, Support-related grip-force adjustments in individuals with hemiparesis: 10<sup>th</sup> Annual Meeting of the Society of Neural Control of Movement, V1, (2000)
15. **Aruin A**, Sharma A. Extrinsic feedback in gait rehabilitation of individuals with hemiparesis. Rush University Forum for Research and Clinical Investigation 2000, 31, Chicago, IL (2000)
16. Rodriguez G., **Aruin A**. The effect of the angled shoe on the symmetry of weight bearing in hemiparetic patients. Rush University Forum for Research and Clinical Investigation 2000, 30, Chicago, IL (2000).
17. **Aruin A**, Chaudhuri G, Hanke T, Harvey R, Rao N. Compelled weight bearing in stroke patients: The effect of lift insert and goal directed balance exercises. International Conference "Progress in Motor Control –II", 34, University Park, PA (1999).
18. **Aruin A**, Hanke T, Sharma A. Step width feedback in the rehabilitation of stroke patients: International Conference "From Basic Motor Control to Functional Recovery", 458-462, Varna, Bulgaria, (1999).
19. **Aruin A**, The effect of a posterior support on anticipatory postural adjustments: 9<sup>th</sup> Annual Meeting of the Society of Neural Control of Movement, S1, (1999).
20. **Aruin A.S.**, M.L. Latash. The effect of magnitude of perturbation on anticipatory postural adjustments. Rush University Research Forum, 174, Chicago, IL (1998).
21. **Aruin A.S.**, Forrest W.R. & M.L. Latash. Anticipatory postural adjustments in conditions of postural instability. Rush University Research Forum 1998, 174, Chicago, IL (1998).

22. Sharma A, Hanke T., & **Aruin A.S.** Restoration of gait in hemiparetic patient by feedback training with step width monitor. Symposium “Advances in Motor Rehabilitation”, 17, Lisle, IL 1998.
23. Shiratori T, **Aruin A.**, & Latash M. Anticipatory phase of step initiation in Parkinson's disease. Symposium “Advances in Motor Rehabilitation”, 18, Lisle, IL 1998.
24. Latash M, **Aruin A.**, Zatsiorsky V. Joint equilibrium trajectories during multi-joint movements. NASPSA Conference, 35, St. Charles, IL (1998).
25. **Aruin A.S.** Anticipatory postural adjustments in health and disease. III International Congress of Motor Rehabilitation, Campinas, Brazil, October 5-8, 1998, Abstract published in: FISIOTERAPIA, 8 (1998).
26. Latash M.L., **Aruin A.S.**: Anticipatory postural adjustments and equilibrium-point hypothesis of motor control. NASPSA. Journal of Sport & Exercise Psychology, 18, 52 (1996).
27. **Aruin A.S.**, Latash M.L, Neyman I. & Nicholas J.J.: About the reason for lack of anticipatory postural adjustments in Parkinson's disease. Rush University Research Forum, 105, Chicago, IL (1996).
28. Latash M.L, **Aruin A.S.**: Reconstruction of joint equilibrium trajectories during unrestrained arm movements. Abstracts of the 26<sup>th</sup> Annual Meeting Society for Neuroscience, 1636 Miami, FL (1996).
29. **Aruin A.S.**, F. Davis, D. Stefoski & Nicholas J.J.: Walking patterns in multiple sclerosis. Rush University Research Forum, 99, Chicago, IL (1996).
30. Latash M.L, **Aruin A.S.**, Neyman I & J.J. Nicholas: Feed-forward postural control in Parkinson's disease. Abstracts of the 4<sup>th</sup> International Congress of Movement Disorders, 406, Vienna, Austria, (1996).
31. **Aruin A.S.**, Latash M.L.: The effects of postural stability on anticipatory postural adjustments. Proceedings of the 20<sup>th</sup> Annual Meeting of the American Society of Biomechanics, 169-170, Atlanta, GA (1996).
32. Latash M.L, **Aruin A.S.**: Reconstruction of joint equilibrium trajectories during unrestrained arm movements. Abstracts of the 26<sup>th</sup> Annual Meeting Society for Neuroscience, 1636 Miami, FL (1996).
33. **Aruin A.S.**, Latash M.L. Anticipatory postural control in conditions of postural instability. Proceedings of the International Conference “Bernstein’s Traditions in Motor

- Control", 27. University Park, PA (1996).
34. **Aruin A.S.**, Latash M.L. & Nicholas J.J.: Postural adjustments in standing of below knee amputees associated with perturbations Abstracts of the 12<sup>th</sup> Annual Scientific Symposium of Rush University, 99, Chicago, IL (1995).
  35. 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 12<sup>th</sup> Annual Scientific Symposium of Rush University, 100, Chicago, IL (1995).
  36. **Aruin A.S.**, Latash M.L.: Unstable posture and anticipatory adjustment during loaddropping. Abstracts of the 12<sup>th</sup> Annual Scientific Symposium of Rush University, 101, Chicago, IL (1995).
  37. **Aruin A.S.**, Latash M.L.: The role of the prime muscle group in feed-forward postural adjustment during velocity independent perturbations. Abstracts of the 12<sup>th</sup> Annual Scientific Symposium of Rush University, 102, Chicago, IL (1995).
  38. **Aruin A.S.**, G. Almeida & Latash M.L.: Feed-forward postural reactions in Down syndrome in a two-joint motor task. Abstracts of the 12<sup>th</sup> Annual Scientific Symposium of Rush University, 103, Chicago, IL (1995).
  39. **Aruin A.S.**, G. Almeida & Latash M.L.: Do predictable and self-inflicted perturbations necessitate anticipatory postural adjustments in Down syndrome? Abstracts of the 12<sup>th</sup> Annual Scientific Symposium of Rush University, 104, Chicago, IL (1995).
  40. **Aruin A.S.**, Latash M.L., Nicholas J.J., F. Davis & D Stefoski: Portable device for examination of gait in multiple sclerosis patients. Abstracts of the 12<sup>th</sup> Annual Scientific Symposium of Rush University, 105, Chicago, IL (1995).
  41. **Aruin A.S.**, Latash M.L.: Motor action and predictability of perturbation in anticipatory postural adjustments. 19<sup>th</sup> Annual Meeting of the American Society of Biomechanics, 59-60, Stanford, CA (1995).
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  43. Latash M.L., **Aruin A.S.**, Neyman I, Nicholas J.J., & Shapiro M.B.: Feed-forward postural control in Parkinson's disease. Abstracts of the 11<sup>th</sup> Annual Scientific Symposium of Rush University, 109, Chicago, IL (1994)
  44. **Aruin, A.S.**, Nicholas J.J., Gottlieb G.L., Lee K.C., & Latash M.L.: Postural adjustments

during dropping and catching weights. Abstracts of the 11<sup>th</sup> Annual Scientific Symposium of Rush University, 107, Chicago IL (1994).

45. **Aruin A.S.**, Latash M.L, Shapiro M.B.: Polyfunctionality of postural muscles in feed-forward postural reactions. Abstracts of the 11<sup>th</sup> Annual Scientific Symposium of Rush University, 108, Chicago, IL (1994).
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47. Latash M.L., **Aruin A.S.**, Shapiro M.B., Neyman I, Nicholas J.J.: Feed-forward postural control in multi-joint movements. Abstracts of the International Conference "Neural Prostheses: Motor System IY", 21. Columbus, OH (1994).
48. 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 International Conference "Neural Prostheses: Motor System IY", 21. Columbus, OH (1994).
49. **Aruin A.S.**, Latash M.L.: Directional specificity of postural muscles during fast arm movements. Proceedings of the 18<sup>th</sup> Annual Meeting of the American Society of Biomechanics, 169-170, Columbus, OH (1994).
50. Shapiro M.B., **Aruin A.S.**, Latash M.L.: Postural synergies during fast movements in a joint of two-joint limb segment. Proceedings of the 18<sup>th</sup> Annual Meeting of the American Society of Biomechanics, 212. Columbus, OH (1994).
51. **Aruin A.S.**, Latash M.L., Neyman I. & Nicholas J.J.: Postural adjustment during wrist and elbow movements in patients with Parkinson's disease. Abstracts of the 24<sup>th</sup> Annual Meeting Society for Neuroscience, 1779, Miami, FL (1994).
52. Almeida G.L., **Aruin A.S.** & Latash M.L.: Organization of a simple, two-joint synergy in individuals with Down syndrome. In: Latash M.L. (Ed.) "Motor Control in Down - Syndrome - II, 10-15, Rush University, Chicago, IL (1994).
53. **Aruin A.S.**, Almeida G.L. & Latash M.L.: Anticipatory postural adjustments during predictable and self-inflicted perturbations in Down syndrome. In: Latash M.L. (Ed) "Motor Control in Down Syndrome-II", 28-33, Rush University, Chicago, IL (1994).
54. **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 American Society of Biomechanics, 55-56, Iowa (1993).

55. **Aruin, A.S.**, Nicholas J.J., Gottlieb G.L., & Latash M.L.: Anticipatory postural reactions while catching and dropping weights. Abstracts of the 55<sup>th</sup> Annual Assembly of American Academy of Physical Medicine & Rehabilitation, 112, Miami, FL (1993).
56. **Aruin, A.S.**: Damping of the striking effect in locomotion. In Abstracts of the First WorldCongress on Biomechanics, San Diego CA, V. 1, 93 (1990).
57. **Aruin, A.S.**: Biomechanics of heavy manual labor while standing. In: Proceedings of 4<sup>th</sup>All-Union Conference on Perspective of Development of Ergonomic Biomechanics, 4-31, Moscow- Sevastopol, Ukraine (1990).
58. Mirtov, J.N., **Aruin, A.S.**: Ergonomic principles of elaboration of an alphanumeric keyboard. Ergonomics and Social Orientation of Progress. p. 110-111. Moscow (1989).
59. **Aruin, A.S.**: Ergonomic biomechanics of manual equipment. In: Abstracts of the 4<sup>th</sup> All-Union Conference on Biomechanics of Sports, 8-10. Chernigov, Ukraine (1989).
60. Mirtov J.N., **Aruin, A.S.**: Biomechanical and ergonomic foundations of a keyboard design. In: Transactions of the 1<sup>st</sup> All-Union Conference on Perspectives of Development of Ergonomic Biomechanics, 140-168, Moscow- Sevastopol, Ukraine (1988).
61. **Aruin, A.S.**, Prilutsky, B.I.: Optimization of arm working movements. In: Transactions of the 1<sup>st</sup> All-Union Conference on Perspectives of Development of Ergonomic Biomechanics, 4-19, Moscow- Sevastopol, Ukraine (1988).
62. Kopilov D.B. **Aruin, A.S.**: Biomechanical approach in computer-aided design of the work place. In: Transactions of the 1<sup>st</sup> All-Union Conference on Perspectives of Development of Ergonomic Biomechanics, 72-81, Moscow- Sevastopol, Ukraine (1988).
63. Mirtov, J.N., **Aruin, A.S.**: A new alphanumeric keyboard for the personal computer. Ergonomics of External Devices for Computers. Abstracts of the All-Union Conference, 91-92. Orel, USSR (1988).
64. **Aruin, A.S.**: Ergonomical aspects in the biomechanics of interaction with supports. 5<sup>th</sup> International Symposium of Biomechanics in Sport, Athens, Greece (1987).
65. **Aruin, A.S.**, Zatsiorsky, V.M. & Prilutsky, B.I.: Extension of the human lower extremity muscles as a function of a joint angle. Proceeding of Conference Dedicated to 150<sup>th</sup> Birthday of Lesgaft, 161. Leningrad, USSR (1987).
66. **Aruin, A.S.**, Sazonov, B.P.: The effect of different working postures on loading of the lower back, Problems of Biomechanics in Sports. All-Union Conference, 8-9, Moscow

(1987).

67. **Aruin, A.S.**, Prilutsky, B.I.: Prediction of changes in length of different heads of the triceps surae muscle using the angles in the ankle and knee joints. 11<sup>th</sup> International Congress of Biomechanics, 16. Amsterdam, Netherlands (1987).
68. **Aruin, A.S.**, Zatsiorsky, V.M., Koretsky, A.V., Potjemkin, B.A.: Investigation of absorbing properties of shoes and their influence on the human body. 5<sup>th</sup> National Congress on Theoretical and Applied Mechanics, 349. Varna, Bulgaria (1985).
69. **Aruin, A.S.**: Modern problems of ergonomic biomechanics. Proceeding of the 30<sup>th</sup> International Wissenschaftlicher Kolloquium, Technische Hochschule Ilmenau, Ilmenau, Germany (1985).
70. **Aruin, A.S.**: Biomechanical foundation of development of equipment for personal protection. All-Union Conference Health and Professional Ability of a Human, 24. Moscow, (1985).
71. **Aruin, A.S.**, Zatsiorsky, V.M. & Prilutsky, B.I.: The "biomechanical" method used for determining the arms of muscular forces. 10<sup>th</sup> International Congress of Biomechanics, 16. Umea, Sweden (1985).
72. **Aruin, A.S.**: Biomechanical aspects of robotics. Proceeding of the 28<sup>th</sup> International Wissenschaftlicher Kolloquium Technische Hochschule Ilmenau, 241-243 Ilmenau, Germany (1983).
73. Averkovich, N.V., **Aruin, A.S.**, Beletsky.: A technique for investigation of the characteristics of movement of athletes. Electronics and Sports-VII, 121-123. Tula, USSR (1983).
74. **Aruin, A.S.**: A method for determining spring capacities of the foot. 7<sup>th</sup> International Congress of Biomechanics, 35. Nagoya, Japan (1981).
75. **Aruin, A.S.**, Zatsiorsky, V.M., Panovko, G.J., & Raitsin, L.M.: The investigation of the biomechanical properties of the lower extremities using the vibration test. In: Problems of Biomechanics. Abstracts of the 2<sup>nd</sup> All-Union Conference. 35-37, Riga, Latvia (1979).
76. **Aruin, A.S.**, Zatsiorsky, V.M.: A method for evaluating of the spring function of the foot. In: Proceedings of the 5<sup>th</sup> All-Union Seminar Physical Methods and Problems of Metrology in Biomedical Measurements, 189-190. Moscow (1978).
77. **Aruin, A.S.**, Raitsin, L.M. & Schirkovets, E.A.: Measurements of the efficiency of muscle work. In: Proceedings of the 4<sup>th</sup> All-Union Seminar Physical Methods and

Problems of Metrology in Biomedical Measurements, 162-163. Moscow (1976)

78. **Aruin, A.S.:** Mechanical properties of the flexors of the foot. In: Abstracts of the 2<sup>nd</sup> All-Union Conference Problems of Biomechanics of Sports, 8-9. Kiev, Ukraine (1976).
79. **Aruin, A.S.,** Averkovich, N.V., & Kholoptsev, V.I.: Optimization of the educational and training processes. Physical Education in Universities. Abstracts of the All-Russian Conference, 117-118. Krasnodar, Ukraine (1976).
80. **Aruin, A.S.:** Method of investigation of the mechanical properties of muscles. In: Proceedings of the 3<sup>rd</sup> All-Union Seminar Physical Methods and Problems of Metrology of Biomedical Measurements, 120-122. Moscow (1974).
81. **Aruin, A.S.:** Investigation of the mechanical properties of muscles of the human lower extremities. In: All-Union Conference of Biomechanics of Sport, 18. Moscow (1974).
82. **Aruin, A.S.,** Averkovich, N.V., & Kholoptsev, V.I.: Device for training of wrestlers. Electronics and Sports-III. Abstracts of the All-Union Conference, 74-75. Leningrad, USSR, (1972).
83. **Aruin, A.S.,** Kulik, N.G., & Kholoptsev, V.I.: Digital storage of pulse. Electronics and Sports-III. Abstracts of the All-Union Conference, .52-53. Leningrad, USSR (1972).
84. **Aruin, A.S.,** Averkovich, N.V, Matchin, A.M. Device for physiological studies in sports. In: Proceedings of the All-Union Conference Theory and Practice in Designing of Devices, Apparatus, and Systems, 60-61. Moscow, USSR (1972).

### SYMPOSIA

- “Dealing with movement perturbation: Adaptations across the life span.” Aruin A, Campbell S, Hasan Z, Pai C. Invited speaker at Annual Conference and Exposition of the American Physical Therapy Association, Chicago, June, 2004
- “Anticipatory postural adjustments: What we know and what we don’t.” Invited speaker at International Congress Movement, Attention & Perception, Poitiers, France, 2002.
- “Step width technique in the rehabilitation of stroke patients. Invited speaker at International Conference “From Basic Motor Control to Functional Recovery”, Varna, Bulgaria, 1999.
- “Anticipatory postural adjustments in health and disease”. Invited speaker at III International Congress of Motor Rehabilitation, Brazil, October 5-8, 1998.
- “Anticipatory postural adjustment during predictable and self-inflicted perturbations in Down

syndrome.” Invited speaker at International Symposium “Motor Control in Down Syndrome-II” Chicago, 1994.

“Biomechanical and ergonomic foundations of keyboard design.” Invited speaker at 5<sup>th</sup> All-Union Conference on Perspectives of Development of Ergonomic Biomechanics. Sevastopol, Ukraine, 1991

“Biomechanics of heavy manual labor.” 4<sup>th</sup> All-Union Conference on Perspectives of Development of Ergonomic Biomechanics. Sevastopol, Ukraine, 1990

“Ergonomic aspects of biomechanics walking and running.” Invited speaker at 3rd All-Union Conference on Perspectives of Development of Ergonomic Biomechanics. Sevastopol, Ukraine, 1989

“Simulation of the human body in computer-aided design”. Invited speaker at 1<sup>th</sup> International Symposium on Computer Simulation in Biomechanics, Warsaw, Poland, 1988.

### GRANTS AWARDED

	(Direct cost)
<ul style="list-style-type: none"> <li>■ "The Organization of Anticipatory Postural Adjustments" Principal Investigator (P.I.) <i>NIH, National Center for Medical Rehabilitation Research, 1998-2005</i></li> </ul>	\$350,000
<ul style="list-style-type: none"> <li>■ Modulation of anticipatory postural adjustments in individuals with Parkinson Disease. (P.I.) <i>UIC, Grant from the College of Applied Health Science, 2001</i></li> </ul>	\$18,000
<ul style="list-style-type: none"> <li>■ “Restoration of Function in Neurological Impairment” (Network Scientist.) (W. Z. Rymer P.I.) <i>NIH, National Center for Medical Rehabilitation Research, 2000-2004</i></li> </ul>	\$3,946,403
<ul style="list-style-type: none"> <li>■ "Step Width Feedback in Rehabilitation of Stroke Patients" (P.I.) <i>Dr. Scholl Foundation, 2000</i></li> </ul>	\$20,000
<ul style="list-style-type: none"> <li>■ “The Effect of Ankle Foot Orthoses on Balance of Patients with Diabetic Neuropathy” (P.I.) <i>Marianjoy Rehabilitation Hospital and Clinics, 1999-2000</i></li> </ul>	\$15,000
<ul style="list-style-type: none"> <li>■ "The Effect of Isometric Abdominal Exercises on the Effectiveness of Treatment of Low- Back Pain" (P.I.)</li> </ul>	\$9,000

*Marianjoy RehabLink, 1999-2000*

- "Development of a Clinical Tool to Improve Motor Recovery in Patients with Step Width Maintenance Deficit" (P.I.) \$27,200  
*Marianjoy Rehabilitation Hospital and Clinics, 1999*
- "Bimanual Coordination in the Neurologically Impaired" (P.I.) \$6,000  
*Marianjoy Rehabilitation Hospital and Clinics, 1999-2000*
- "Compelled Weight Bearing in Stroke Patients" (P.I.) \$35,500  
*Marianjoy Rehabilitation Hospital and Clinics, 1998-1999*
- "Anticipatory Postural Reactions in Below Knee Amputees" (P.I.) \$6,000  
*Rush University Committee on Research, 1995*
- "Biomechanical Foundations of Human Environmental Design" (P.I.) 219,000  
*Russian State Committee for Higher Education, 1990-1992*
- "Laser Method of Measuring Athletes' Movements" (P.I.) 60,000  
*The Committee of Physical Education and Sports under the Council of Ministers of the USSR, 1988-1990*
- "Development of Stereo-Photo Method of Recording (P.I.) 38,000  
Movements" *The Committee of Physical Education and Sports under the Council of Ministers of the USSR, 1983-1984*
- "Method and Apparatus for Recognition of Spoken Words" (P.I.) 60,000  
*The Institute of Radio Technology of the USSR Academy of Science, 1969-1970*

**TEACHING**

- Research Principles and Experiment Design, Basic Bio-statistics. Lectures for Physical Medicine & Rehabilitation medical residents. *Rush-Presbyterian St. Luke's Medical Center, Chicago, IL, 2003*
- Research Principles and Experiment Design, Basic Bio-statistics. Lectures for Physical Medicine & Rehabilitation medical residents. *Marianjoy Rehabilitation Hospital, Wheaton, IL, 2003*
- Control of posture and locomotion. Graduate course. *University of Illinois at Chicago, IL, 2000, 2004*

- Biophysics. DPT course. *University of Illinois at Chicago, IL, 2002, 2003, 2004*
- Seminar in Physical Therapy. Graduate course. *University of Illinois at Chicago, IL, 2000, 2001, 2002, 2003, 2004*
- Kinesiology. Lectures for graduate students. *University of Illinois at Chicago, IL, 2000, 2002*
- Biomechanics. Lectures for Physical Medicine & Rehabilitation medical residents of *Rush Medical College, Loyola University, and the Rehabilitation Foundation, Chicago, IL, 1999,*
- Research Methods. Lectures for Physical Medicine & Rehabilitation medical residents. *Rehabilitation Foundation, Chicago, IL, 1998-1999*
- Motor Control. Graduate course (substitute). *Pennsylvania State University, PA, 1996*
- Kinesiology. Lectures for Physical Medicine & Rehabilitation medical residents, *Rush-Presbyterian St. Luke's Medical Center, Chicago, IL, 1995*
- Ergonomic Biomechanics. *Central Institute of Physical Culture, USSR, 1987-1991*
- Occupational Biomechanics. *Institute of Aeronautical Engineering and Institute of Electronics and Automation. USSR, 1986-1991*
- Biomechanical Aspects of Ergonomics. *Moscow Institute of Electronic Engineering, USSR, 1985-1990*
- Medical and Biological Foundations of Exercise and Sport Science. *Moscow Institute of Electronic Engineering. USSR, 1979-1992*
- Biomechanics. Graduate Course. *Central Institute of Physical Culture, USSR, 1973-1978*

### STUDENT SUPERVISION

- Ph.D. Thesis committee chairman, University of Illinois at Chicago, IL, 2003- present
- MS Thesis committee chairman, University of Illinois at Chicago, IL, 2002- present.
- Ph.D. Thesis committee member, Pennsylvania State University, PA, 2000-2002
- MS Thesis committee member, University of Illinois at Chicago, IL, 2000- present
- Supervisor of Physical Medicine & Rehabilitation medical residents working on research projects, 1998 – present
- Consultant for the Northern Illinois University physical therapy and electrical engineering students on research, 1997-2000
- Supervised/advised a number of graduate and undergraduate students working on master's or doctoral theses and research projects (1976-1992). Two graduate students received National Gold Medals for Best Student Thesis Project in the Natural, Technical, and Social Fields in 1977

### PROFESSIONAL SERVICES

#### *Program Committees*

- Chairman of the Institutional Review Board, Marianjoy Rehabilitation Hospital since 2003
- Member of the Education Committee, Rehabilitation Foundation, 1998 to 2000
- Member of the Scientific Review Committee, Marianjoy Rehabilitation Hospital, 1997 to

present

- Member of the Master & Doctoral Thesis Committees in different universities in the former USSR, 1983-1992

### *Conferences & Symposia Organizer*

- Member of the Organizing Committee. Fourth International Conference “From Basic Motor Control to Functional Recovery” Varna, Bulgaria, September 21-25, 2005
- Member of the Organizing Committee. Third International Conference “From Basic Motor Control to Functional Recovery” Varna, Bulgaria, September 20-25, 2003
- Section Chair. Second International Conference “From Basic Motor Control to Functional Recovery” Varna, Bulgaria, September 9-15, 2001
- Section Chair. International Conference “From Basic Motor Control to Functional Recovery” Varna, Bulgaria, September 22-26, 1999
- Chairman of the Medical Resident’s Symposium on Research in Physical Medicine & Rehabilitation. Wheaton, Illinois, December 16, 1998
- Co-Chairman of the Symposium “Advances in Motor Rehabilitation”, Lisle, Illinois, June 19, 1998
- Chairman of the Organizing Committee of the 5<sup>th</sup> All-Union Conferences “Perspective of Development of Ergonomic Biomechanics”, Sevastopol, Ukraine, 4-8 October, 1990
- Chairman of the Organizing Committee of the 4<sup>th</sup> All-Union Conferences “Perspective of Development of Ergonomic Biomechanics”, Sevastopol, Ukraine, 3-7 October, 1989
- Section Chair, 1<sup>st</sup> International Symposium on Computer Simulation in Biomechanics, Warsaw, Poland, 1988
- Vice-Chairman of the Organizing Committee of the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> All-Union Conferences “Perspectives of Development of Ergonomic Biomechanics”, Sevastopol, Ukraine, 1986, 1987, 1988

### *College and University Service*

- Executive Committee 2000 - present
- Promotion and Tenure Committee 2000 - present
- MD/PhD Training Program 2003 - present
- Interdisciplinary Training Program in Neuroscience 2003 - present
- Interdisciplinary PhD Program in Disability Studies 2000 – present
- Campus Review Board, UIC 2001- 2002

### *Department Service*

- Promotion and Tenure Committee 2000 - present
- Space Committee 2003 - present
- Admission Committee 2004 - present

- Faculty Advisory Council 2004 - present

### *Professional Societies*

- Society for Neuroscience 1999 to present
- Neural Control of Movements 1999 to present
- American Society of Biomechanics 1994 to present
- Scientific Council for Biomechanics of Russian Academy of Sciences 1986 to present

### *Ad-Hoc Reviewer*

- Gait and Posture, 2004
- Brain, 2003
- Neuroscience Letters, 2003
- Journal of Motor Behavior, 2003
- Journal of Neurophysiology, 2003
- Experimental Brain Research, 2001, 2002, 2003, 2004
- Motor Control, 1996, 1997, 1998, 2000, 2002, 2003
- Muscle & Nerve, 2000, 2001, 2004
- Perceptual and Motor Skills, 1998
- Medicine and Science in Sport and Exercise, 1995, 2004
- Theory and Practice in Physical Education, 1989-1990
- Human Physiology, 1988 - 1991

## INVENTIONS AND PATENTS

1. **Aruin, A.S.** Device and method for motor rehabilitation. UIC Invention Disclosure # 2001- CV47 (2001)
2. **Aruin, A.S.** Apparatus and method for assessment and feedback training of step width coordination. USA Patent # 6,234,982 (2001)
3. **Aruin, A.S.,** Nicholas J. J. Knee and hip exercise device and method. USA Patent # 6,056,675 (2000)
4. **Aruin, A.S.** Leg exerciser and method. USA Patent # 5,879,275 (1999).
5. **Aruin, A.S.,** Raitsin L. M. Method and device for exercising the abdominal muscles. USA Patent # 5,823,913 (1998).
6. **Aruin, A.S.** Pedal assembly. PSU Invention Disclosure #96-1637.

7. **Aruin, A.S.** Leg exerciser. PSU Invention Disclosure #96-1591.
8. **Aruin, A. S.** Foot, ankle, and lower leg exercise system. PSU Invention Disclosure #95-1548.
9. **Aruin, A.S.**, Gerasimenko, V.G., Tuleubaeva, G.F. & Shmeleva E.L. Device for providing stability of the foot. USSR Patent # 1782573.
10. **Aruin, A.S.**, Gerasimenko, V.G., Tuleubaeva, G.F. & Shmeleva, E.L. Device for training of the disabled persons. USSR Patent # 1761142.
11. **Aruin, A.S.**, Farber, B.S., Tcherbakov, N.N. & Shmeleva, E.L. Special pliers. Patent USSR # 1731620.
12. **Aruin, A.S.**, Gerasimenko, V.G., Farber, B.S. & Tuleubaeva, G.F. Device for treatment of the vascular edema. USSR Patent # 1731215.
13. **Aruin, A.S.**, Mirtov, J.N., Shmeleva, E.L. Keyboard. USSR Patent # 1705127.
14. **Aruin A.S.**, Farber B.S., Gerasimenko V.G. & Shmeleva E.L. Device for massage of the extremities. USSR Patent #1629059.
15. **Aruin, A.S.**, Gerasimenko, V.G. & Farber, B.S. Hand massager. USSR Patent # 1627178.
16. **Aruin, A.S.**, Farber, B.S., Gadatelev, A., Shmeleva, E.L. Method of fabrication of handles. USSR Patent # 1613316.
17. **Aruin, A.S.**, Gerasimenko, V.G. & Farber, B.S. Hoop for massage. Patent USSR Patent # 1595515.
18. **Aruin, A.S.**, Prilutsky, B.I. Method for determining human muscle stiffness and viscosity. USSR Patent #1586680.
19. **Aruin, A.S.**, Farber, B.S. & Nikitin, N.G. Orthopedic inner sole. USSR Patent # 1570727.
20. **Aruin, A.S.**, Zatsiorsky, V.M. Device for measuring the human body volume, USSR Patent # 1551348.
21. Mirtov, J.N., **Aruin, A.S.** Keyboard. USSR Patent # 1518144.
22. **Aruin, A.S.**, Zatsiorsky, V.M. Method for determining the human body volume. USSR

Patent # 1491448.

23. **Aruin, A.S.**, Zatsiorsky, V.M. Method of lowering of fatigue of an operator. USSR Patent # 1419694.
24. **Aruin, A.S.**, Zatsiorsky, V.M. Method for decreasing the load on the upper body. USSR Patent # 1393418.
25. **Aruin, A.S.**, Zatsiorsky, V.M. Operator's workstation, USSR Patent # 1335277.
26. **Aruin, A.S.** Device for measuring the parameters of the foot relocation. USSR Patent # 1331489.
27. **Aruin, A.S.**, Zatsiorsky, V.M. Method for determination of biomechanical characteristics of the musculoskeletal system. USSR Patent # 1327877.
28. **Aruin, A.S.** Foot arch sole Patent USSR # 1316670.
29. **Aruin, A.S.**, Zivotchenko, V.D., Nikitin, N.G. & Farber, B.S. System for determining the moments of the forces in an extremity. USSR Patent # 1286161.
30. **Aruin, A.S.**, Prilutsky, B.I., Chaknazarov, A.I. Device for measuring changes in length of muscles. USSR Patent # 1258377.
31. **Aruin, A.S.**, Prilutsky, B.I. Method of determination of changes in the muscle length USSR Patent 1222247.
32. **Aruin, A.S.**, Zatsiorsky, V.M. & Potjemkin, B.A. Method of determining the damping ability of an object. USSR Patent # 1208490.
33. **Aruin, A.S.** Method of determining the damping ability of an object. USSR Patent # 137372.
34. **Aruin, A.S.**, Raitsin, L.M. & Prilutsky, B.I. Method of assessment of biomechanical characteristics of muscles. USSR Patent # 1168193.
35. Krilov, V.B., Lyashukova, S.M., Maksimov, I.B. & **Aruin, A.S.** Device for monitoring the movement of airplanes and transporting vehicles at airports. USSR Patent # 1067759.
36. Zatsiorsky, V.M., Raitsin, L.M., Balachnitchev, V.V. & **Aruin, A.S.** Device for measuring the characteristics of stride. USSR Patent # 754727
37. **Aruin, A.S.**, Averkovich, N.V., & Kholoptsev, V.I. Device for recording rule-breaking

phase in athletic walking. USSR Patent # 748471.

38. Zatsiorsky, V.M., **Aruin, A.S.**, Raitsin, L.M. & Balachnitchev, V.V. Device for measurement of the temporal and linear characteristics of stride. USSR Patent #705978.
39. **Aruin, A.S.**, Balachnitchev, V.V., Zatsiorsky, V.M. & Raitsin, L.M. Device for control of the crossing of a light border. USSR Patent # 669371.
40. **Aruin, A.S.** Device for measuring the dimensions of the foot under pressure. USSR Patent #668678.
41. Zatsiorsky, V.M., **Aruin, A.S.** Method for the examination of the foot. USSR Patent #544842
42. **Aruin, A.S.**, Averkovich, N.V. & Kholoptsev, V.I. Stride-meter. USSR Patent # 469053

#### **PUBLIC RELATIONS**

Research cited and/or subject of interview, popular press

- |      |   |
|------|---|
| 1977 | “Students’ achievements in research” Higher Education, September 17       |
| 1982 | “Success of researchers” Soviet Sport, March 25                           |
| 1991 | “Ergonomic Biomechanics” Sevastopol Pravda, September 10                  |
| 1998 | “Unique lab studies human joint, muscle movement” Daily Herald, March 10  |
| 1998 | “Open house shows new motion analysis facility” DuPage News, March 11     |
| 1998 | “Doctors muscle in on disabilities” Chicago Tribune, May 8                |
| 1998 | “Cardinal’s visit lights up Marianjoy patients” The Wheaton Sun, March 25 |
| 1999 | “First Person” Chicago Tribune, November 17                               |