

## Professional Vita

### Philip E. Martin, Ph.D.

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## Educational Background

University of Illinois, Urbana, IL, B.S., 1977

University of Illinois, Urbana, IL, M.S., 1979

The Pennsylvania State University, University Park, PA, Ph.D., 1983

Undergraduate academic training was in Physical Education with an emphasis in athletic training. Graduate academic training was in Physical Education with an emphasis in biomechanics.

## Professional Experience

Iowa State University, Ames, Iowa

Professor of Kinesiology, 2008- .

Chair, Department of Kinesiology, 2008- .

The Pennsylvania State University, University Park, Pennsylvania

Professor of Kinesiology, 2002-2008.

Head, Department of Kinesiology, 2002-2007.

Arizona State University, Tempe, Arizona

Chair, Department of Exercise Science and Physical Education, 2001-2002.

Director, Interdisciplinary Ph.D. Program in Exercise Science, Jan.-June, 2002.

Acting Chair, Exercise Science and Physical Education, 2000-2001.

Professor of Exercise Science and Physical Education, 1996-2002.

Director, Exercise and Sport Research Institute, 1995-2000.

Interim Chair, Exercise Science and Physical Education, 1992-1994.

Associate Professor of Exercise Science and Physical Education, 1989-1996.

Coordinator, Masters of Science Program, ESPE, 1989-1992.

Acting Director, Exercise and Sport Research Institute, Jan.-May, 1989.

Assistant Professor of Physical Education, 1983-1989.

The Pennsylvania State University, University Park, Pennsylvania

Graduate Research Assistant, 1980-1983.

University of Illinois, Urbana, Illinois

Graduate Teaching and Research Assistant, 1977-1979.

Research and Teaching Assistant, 1979-1980.

## Professional Affiliations

American Academy of Kinesiology and Physical Education, Fellow, 1997- .

Secretary-Treasurer, 2006-2008.

American Alliance for Health, Phys. Education, Recreation, and Dance (AAHPERD), 1982- .

Research Consortium of the AAHPERD, 1985- .

American College of Sports Medicine (ACSM), Member, 1981- ; Fellow, 1987- .

Southwest Chapter of ACSM, 1986-2002.

Mid-Atlantic Regional Chapter of ACSM, 2006-08.

American Society of Biomechanics (ASB), Member, 1982- ;

President-elect, President, Past-President, 1993-96.

International Society of Biomechanics, 1983- .

Sigma Xi, 1991- .

## Honors/Special Distinctions

Pease Family Scholar, Department of Health and Human Performance, Iowa State University, Ames, IA, 1998.  
Fellow, American Academy of Kinesiology and Physical Education, 1997- .

Associate Editor, Exercise and Sport Mechanics, *Journal of Applied Biomechanics*, 1997-2005.

President-elect (1993-94), President (1994-95), and Past-President (1995-96), American Society of Biomechanics.

Meeting Chair, 1991 American Society of Biomechanics annual meeting.

Biomechanics Section Editor, *Research Quarterly for Exercise and Sport*, 1990-1993.

Honorary Member, Golden Key National Honor Society, ASU Chapter, 1989- .

Emerging Professional Award recipient, Alumni Society, College of Health and Human Development, Penn State University, 1988-89.

Visiting Professor, Biomechanics Laboratory, Department of Exercise and Sport Science, Penn State University, July, 1988.

Fellow, American College of Sports Medicine, 1987- .

## Administrative Experience

Chair, Department of Kinesiology, Iowa State University, 2008- .

Responsible for the department of 16 tenured/tenure track faculty, 7 full-time or 14 part-time instructional faculty and advisors, 5 administrative and scientific staff, 830 undergraduate and 40 graduate students, diverse undergraduate and graduate offerings (undergraduate major with six options, including two professional programs; M.S. and Ph.D graduate programs with six specializations), \$2.8 million annual personnel and operating budget, \$2.0 million in annual external grant funding, management of 90,000 ft<sup>2</sup> complex for teaching, research, and physical activity opportunities.

Head, Department of Kinesiology, Penn State University, 2002-07.

Responsible for the department of 25 tenured/tenure track faculty, 15 full-time instructional faculty, 15 part-time instructional faculty, 20 administrative, advising, and technical staff, multi-campus faculty relations, 900 undergraduate and 60 graduate students, diverse undergraduate and graduate offerings (undergraduate major with four options, including two professional programs; M.S. and Ph.D graduate programs with seven areas of specialization), a large physical activity service program (approximately 15,000 student credit hours per year), \$5 million annual personnel and operating budget, \$5 million in annual external grant funding, management of complex academic and research facilities.

Chair and Interim Chair, Department of Exercise Science and Physical Education (now Kinesiology), Arizona State University, 1992-94, 2000-02.

Responsible for academic leadership of the department of 25 tenured/tenure track faculty, 20 full- and part-time instructional faculty, 12 administrative and research staff, 800 undergraduate and 50 graduate students, undergraduate major with two concentrations, M.S. and Ph.D graduate programs with six areas of specialization, a moderate-sized physical activity service program (approximately 4,000 student credit hours per year), \$2.5 million annual personnel and operating budget, \$1 million in annual external grant funding, management of two major academic and research facilities.

Director, Interdisciplinary Ph.D. Program in Exercise Science, Jan.-June, 2002.

Director, Exercise and Sport Research Institute, 1995-2000.

Coordinator, Masters of Science Program, ESPE, 1989-1992.

## Publications

### Refereed Journal Articles

Smith, J.D. and Martin, P.E. (in review). Short and longer term changes in amputee walking patterns due to increased prosthesis inertia. *Human Movement Science*.

Heise, G.D., Smith, J.D., and Martin, P.E. (in review). Lower extremity mechanical work during stance explains interindividual variability in running economy. *Journal of Sports Science*.

Peterson, D.S. and Martin, P.E. (in review). Effects of age and speed on coactivation during walking. *Gait & Posture*.

Umberger, B.R. and Martin, P.E. (2007). Mechanical power and efficiency of level walking with different stride rates. *Journal of Experimental Biology* **210**, 3255-3265.

- Smith, J.D. and Martin, P.E. (2007). Walking patterns change rapidly following asymmetrical lower extremity loading. *Human Movement Science* **26**, 412-425.
- Sanderson, D.J., Martin, P.E., Honeyman, G., and Keefer, J. (2006). Gastrocnemius and soleus muscle length, velocity, and EMG responses to changes in pedalling cadence. *Journal of Electromyography and Kinesiology* **16**, 642-649.
- Umberger, B.R., Gerritsen, K.G.M., and Martin, P.E. (2006). Muscle fiber type effects on energetically optimal cadences in cycling. *Journal of Biomechanics* **39**, 1472-1479.
- Royer, T.D. and Martin, P.E. (2005). Manipulations of leg mass and moment of inertia: effects on energy cost of walking. *Medicine and Science in Sports and Exercise* **37**, 649-656.
- Morgan, D.W., Tseh, W., Caputo, J.L., Keefer, D.J., Craig, I.S., Griffith, K.B., Akins, M.B., Griffith, G.E., Krahenbuhl, G.S., and Martin, P.E. (2004). Longitudinal stratification of gait economy in young boys and girls: the locomotion energy and growth study. *European Journal of Applied Physiology* **91**, 30-34.
- Kao, J.C., Robertson-Ringenbach, S.D., and Martin, P.E. (2003). Gait transitions are not dependent on changes in intralimb coordination variability. *Journal of Motor Behavior* **35**, 211-214.
- Umberger, B.R., Gerritsen, K.G.M., and Martin, P.E. (2003). A model of human muscle energy expenditure. *Computer Methods in Biomechanics and Biomedical Engineering* **6**, 99-111.
- Martin, P.E. and Umberger, B.R. (2003). Trends in Interdisciplinary and Integrative Graduate Training: an NSF IGERT example. *Quest* **55**, 86-94.
- Morgan, D.W., Tseh, W., Caputo, J.L., Keefer, D.J., Craig, I.S., Griffith, K.B., Akins, M.B., Griffith, G.E., Krahenbuhl, G.S., and Martin, P.E. (2002). Prediction of the aerobic demand of walking in children. *Medicine and Science in Sports and Exercise* **34**, 2097-2102.
- Slade, J.M., Landers, D.M., and Martin, P.E. (2002). Muscular activity during real and imagined movements: a test of inflow explanations. *Journal of Sport and Exercise Psychology* **24**, 151-167.
- Morgan, D.W., Tseh, W., Caputo, J.L., Keefer, D.J., Craig, I.S., Griffin, K.B., Akins, M.B., Griffith, G.E., and Martin, P.E. (2002). Longitudinal profiles of oxygen uptake during treadmill walking in able-bodied children: the locomotion energy and growth study. *Gait and Posture* **15**, 230-235.
- Heise, G.D. and Martin, P.E. (2001). Are variations in running economy in humans associated with ground reaction force characteristics? *European Journal of Applied Physiology* **84**, 438-442.
- Umberger, B.R. and Martin, P.E. (2001). Testing the planar assumption during ergometer cycling. *Journal of Applied Biomechanics* **17**, 55-62.
- Keefer, D.J., Tseh, W., Caputo, J.L., Craig, I.S., Martin, P.E., and Morgan, D.W. (2000). Stability of running economy in young children. *International Journal of Sports Medicine* **21**, 583-585.
- Tseh, W., Caputo, J.L., Craig, I.S., Keefer, D.J., Martin, P.E., and Morgan, D.W. (2000). Metabolic accommodation of young children to treadmill walking. *Gait and Posture* **12**, 139-142.
- Marsh, A.P., Martin, P.E., and Foley K.O. (2000). Effect of cadence, cycling experience, and aerobic power on delta efficiency during cycling. *Medicine and Science in Sports and Exercise* **32**, 1630-1634.
- Kao, J.C., Payne, V.G., Thomas, J.R., Martin, P.E., and Robertson, S.D. (2000). Intralimb coordination during walking and running. *Journal of Human Movement Studies* **39**, 105-113.
- Mattes, S.J., Martin, P.E., and Royer, T.A. (2000). Walking symmetry and energy cost in persons with unilateral transtibial amputations: matching prosthetic and intact limb inertial properties. *Archives of Physical Medicine and Rehabilitation* **81**, 561-568.
- Marsh, A.P., Martin, P.E., and Sanderson, D.J. (2000). Is a joint moment cost function associated with preferred cycling cadence? *Journal of Biomechanics* **33**, 173-180.
- Morgan, D.W., Tseh, W., Caputo, J.L., Craig, I.S., Keefer, D.J., and Martin, P.E. (1999). Sex differences in running economy of young children. *Pediatric Exercise Science* **11**, 122-128.
- Martin, P.E., and Grabiner, M.D. (1999). Aging, exercise, and the predisposition to falling. *Journal of Applied Biomechanics* **15**, 52-55.
- Heise, G.D. and Martin, P.E. (1998). "Leg spring" characteristics and the aerobic demand of running. *Medicine and Science in Sports and Exercise* **30**, 750-754.
- Marsh, A.P., and Martin, P.E. (1998). Perceived exertion and the preferred cycling cadence. *Medicine and Science in Sports and Exercise* **30**, 942-948.
- Rand, M.K., Wunderlich, D.A., Martin, P.E., Stelmach, G.E., and Bloedel, J.R. (1998). Adaptive changes in responses to repeated locomotor perturbations in cerebellar patients. *Experimental Brain Research* **122**, 31-43.
- Seidler, R.D. and Martin, P.E. (1997). The effects of balance training on the postural control of older adults. *Gait and Posture* **6**, 224-236.

- Marsh, A.P. and Martin, P.E. (1997). Effect of cycling experience, aerobic power, and power output on preferred and most economical cycling cadences. *Medicine and Science in Sports and Exercise* **29**, 1225-1232.
- Sanderson, D.J. and Martin, P.E. (1997). Lower extremity kinematic and kinetic adaptations in unilateral below knee amputees during walking. *Gait and Posture* **6**, 126-136.
- Sanderson, D.J. and Martin, P.E. (1996). Joint kinetics in unilateral below knee amputees during running. *Archives of Physical Medicine and Rehabilitation* **77**, 1279-1285.
- Marsh, A.P. and Martin, P.E. (1995). The relationship between cadence and lower extremity emg in cyclists and non-cyclists. *Medicine and Science in Sports and Exercise* **27**, 217-225.
- Morgan, D., Martin, P., Craib, M., Caruso, C., Clifton, R., and Hopewell, R. (1994). Effect of step length optimization on the aerobic demand of running. *Journal of Applied Physiology* **77**, 245-251.
- McClay, I.S., Robinson, J.R., Andriacchi, T.P., Frederick, E.C., Gross, T., Martin, P., Valiant, G., Williams, K.R., and Cavanagh, P.R. (1994). A kinematic profile of skills in professional basketball players. *Journal of Applied Biomechanics* **10**, 205-221.
- McClay, I.S., Robinson, J.R., Andriacchi, T.P., Frederick, E.C., Gross, T., Martin, P., Valiant, G., Williams, K.R., and Cavanagh, P.R. (1994). A profile of ground reaction forces in professional basketball. *Journal of Applied Biomechanics* **10**, 222-236.
- Martin, P.E., Heise, G.D., and Morgan, D.W. (1993). Interrelationships between mechanical power, energy transfers, and walking and running economy. *Medicine and Science in Sports and Exercise* **25**, 508-515.
- Hreljac, A. and Martin, P.E. (1993). The relationship between smoothness and economy during walking. *Biological Cybernetics* **69**, 213-218.
- Marsh, A.P. and Martin, P.E. (1993). The association between cycling experience and preferred and most economical cadences. *Medicine and Science in Sports and Exercise* **25**, 1269-1274.
- Martin, P.E. and Morgan, D.W. (1992). Biomechanical considerations for economical walking and running. *Medicine and Science in Sports and Exercise* **24**, 467-474.
- Martin, P.E., Rothstein, D.E., and Larish, D.D. (1992). Effects of age and physical activity status on the speed-aerobic demand relationship of walking. *Journal of Applied Physiology* **73**, 200-206.
- Martin, P.E. and Marsh, A.P. (1992). Step length and frequency effects on ground reaction forces during walking. *Journal of Biomechanics* **25**, 1237-1239.
- Martin, P.E. and Heise, G.D. (1992). Archery bow grip force distribution: relationship with skill level and fatigue. *International Journal of Sport Biomechanics* **8**, 305-319.
- Siler, W.L. and Martin, P.E. (1991). Changes in running pattern during a treadmill run to volitional exhaustion: fast vs. slow runners. *International Journal of Sport Biomechanics* **7**, 12-28.
- Morgan, D.W., Martin, P.E., Krahenbuhl, G.S., and Baldini, F.D. (1991). Variability in running economy and mechanics among trained male runners. *Medicine and Science in Sports and Exercise* **23**, 378-383.
- Martin, P.E. and Cavanagh, P.R. (1990). Segment interactions within the swing leg during unloaded and loaded running. *Journal of Biomechanics* **23**, 529-536.
- Mungiole, M. and Martin, P.E. (1990). Estimating segment inertial properties: Comparison of Magnetic Resonance Imaging with existing methods. *Journal of Biomechanics* **23**, 1039-1046.
- Morgan, D.W., Martin, P.E., Baldini, F.D., and Krahenbuhl, G.S. (1990). Effects of a prolonged maximal run on running economy and running mechanics. *Medicine and Science in Sports and Exercise* **22**, 834-840.
- Walker, J.A., Wells, C.L., and Martin, P.E. (1990). Effects of Roling therapy on running economy. *Journal of Applied Sport Science Research* **4**, 148-153.
- Martin, P.E., Siler, W.L., and Hoffman, D. (1990). Electromyographic analysis of bow string release by highly skilled archers. *Journal of Sports Sciences* **8**, 215-221.
- Martin, P.E., Mungiole, M., Marzke, M.W., and Longhill, J.M. (1989). The Use of Magnetic Resonance Imaging for Measuring Segmental Inertial Properties. *Journal of Biomechanics* **22**(4), 367-376.
- Morgan, D.W., Baldini, F.D., Martin, P.E., and Kohrt, W.M. (1989). Ten-Kilometer Performance and Velocity at VO<sub>2</sub>max among a Homogeneous Group of Well-Trained Runners. *Medicine and Science in Sports and Exercise* **21**, 78-83.
- Morgan, D.W., Martin, P.E., and Krahenbuhl, G.S. (1989). Factors affecting running economy. *Sports Medicine* **7**, 310-330.
- Larish, D.D., Martin, P.E., and Mungiole, M. (1988). Characteristic patterns of walking in the healthy old. *Annals of the New York Academy of Sciences* **515**, 18-32.
- Morgan, D.W. and Martin, P.E. (1986). Effects of stride length alteration on racewalking economy. *Canadian Journal of Applied Sport Sciences* **11**, 211-217.
- Martin, P.E. and Nelson, R.C. (1986). The effect of carried loads on the walking patterns of men and women. *Ergonomics* **29**(10), 1191-1202.

- Martin, P.E. and Nelson, R.C. (1985). The effect of carried loads on combative movement performance of men and women. *Military Medicine* **150**, 357-362.
- Martin, P.E. (1985). Mechanical and physiological responses to lower extremity loading during running. *Medicine and Science in Sports and Exercise* **17**, 427-433.

### Book Chapters

- Cheetham, P.J., Martin, P.E., Mottram, R.E., and St Laurent, B.F. (2001). The importance of stretching the "X-Factor" in the downswing of golf: the "X-factor stretch." In P.R. Thomas (Ed.), *Optimising Performance in Golf* (pp. 192-199). Brisbane: Australian Academic Press. ISBN 1 875378 37 5.
- Grabiner, M.D. and Martin, P.E. (2001). Biomechanics and physiology of posture and gait. In J.L. Roitman (Ed.), *ACSM's Resource Manual for Guidelines for Exercise Testing and Prescription* (4th Ed., pp. 113-119). Baltimore: Lippincott Williams & Wilkins.
- Martin, P.E., Sanderson, D.J., and Umberger, B.R. (2000). Factors affecting preferred rates of movement in cyclic activities. In Zatsiorsky, V.M. (ed), *Biomechanics in Sport: Performance Enhancement and Injury Prevention* (Volume IX of *The Encyclopaedia of Sports Medicine*), pp. 143-160. Oxford, UK: Blackwell Science Ltd.
- Martin, P.E. and Sanderson, D.J. (2000). Biomechanics of walking and running. In W.E. Garret and D.T. Kirkendall (Eds.), *Exercise and Sport Science*, pp. 661-674. Philadelphia: Lippincott Williams & Wilkins.
- Grabiner, M.D. and Martin, P.E. (1998). Biomechanics and physiology of posture and gait. In J.L. Roitman (Ed.), *ACSM's Resource Manual for Guidelines for Exercise Testing and Prescription* (3rd Ed., pp. 109-115). Baltimore: Williams & Wilkins.

### Book Editor

- Skinner, J.S., Corbin, C.B., Landers, D.M., Martin, P.E., and Wells, C.W. (Eds.). (1989). *Future Directions in Exercise and Sport Science Research*. Champaign, IL: Human Kinetics.

### Funded Grants

#### External Grants

- Martin, P.E. (February-July, 2009). Enabling accelerometry technology for free-living gait assessment devices (Iowa State University sub-contract, \$48,400). Total award: J. Jeffrey Richardson, P.I. Living Systems, Inc., Boulder, CO. NIH/NIA 1R43AG033411-01, \$177,914.
- He, J., Stelmach, G.E., Marzke, M.W., Gerritsen, K., Martin, P.E., Marzke, R., Hoppenstadt, F., Sweeney, J., Razdan, A., Reed, K., Santello, M., Satterlie, R., Yamaguchi, G., and Young, D. (July, 2000-July, 2003). Musculoskeletal and neural adaptations in form and function. NSF-Integrative Graduate Education and Research Training award, NSF# 9987619, \$1.7 million.
- Stelmach, G.E., Bloedel, J., Hestenes, D.O., Yamaguchi, G.T., Rockwood, A.P., and Martin, P.E. (January, 1993-December, 1997). Adaptation and computational characteristics of motor coordination. Flinn Foundation, \$499,985.
- Martin, P.E. and Marsh, T. (October, 1991-September, 1992). The relationship between cadence, power output, oxygen consumption, and iEMG in cycling. Cycling Research Association, \$1950.
- Martin, P.E. and Bryant, C. (June, 1991-May, 1992). The relationship between physical activity status and walking patterns in the elderly. Rockport Walking Institute, \$3000.
- Sanderson, D.J. and Martin, P.E. (October, 1990-May, 1991). Analysis of Walking and Running Kinetics: Below Knee Amputees versus Normals. Flex-Foot, Inc., \$1300.
- Martin, P.E. and Joganich, T.G. (February-July, 1990). Influence of Orthotics on Lower Extremity Function in Cycling. Nike, Inc., \$2,970.
- Martin, P.E. and Hinrichs, R.N. (October, 1988-August, 1989). Interrelationships among Mechanical Power, Energy Transfers, and Running Economy. Nike, Inc., \$3,900.
- Larish, D.D. and Martin, P.E. (August, 1988-July, 1993). Biomechanical Considerations for Economical Walking in the Aged. National Institute on Aging, R29 AG07352, \$364,851.
- Martin, P.E. (January-December, 1988). Changes in Bow Grip Pressure Distribution during Arrow Release and with Fatigue. U.S. Olympic Committee, \$13,950.

- Martin, P.E. and Landers, D.M. (June-July, 1987). First International Symposium on Archery/Third International Archery Seminar: Benefits for the U.S. Archery Team Research/Service Program (travel grant). National Archery Association Foundation, \$3,900.
- Martin, P.E. and Landers, D.M. (March, 1987-December, 1987). Analyses of Archery Performance: Research Equipment Needs. U.S. Olympic Foundation, \$42,750. (For the National Archery Association).
- Landers, D.M. and Martin, P.E. (January-December, 1987). EEG Feedback Training to Improve Archery Performance. U.S. Olympic Committee, \$12,300.
- Martin, P.E., Landers, D.M., and Larish, D.D. (January-December, 1987). Interrelationships amongst Body Stability, Bow Stability, and Respiration Pattern in Archery. U.S. Olympic Committee, \$10,000.
- Martin, P.E. and Landers, D.M. (April, 1986-March, 1987). Biomechanical, Psychological, and Psychophysiological Investigations of Archery Performance. U.S. Olympic Committee, \$20,000.
- Landers, D.M. and Martin, P.E. (July-December, 1985). Psychophysiological and psychological investigations of archery performance. U.S. Olympic Committee Elite Athlete Project/National Archery Association, \$4500.
- Martin, P.E. and Landers, D.M. (July-December, 1985). Body stability and electromyographic characteristics of archers. U.S. Olympic Committee Elite Athlete Project/National Archery Association, \$4500.
- Landers, D.M., Christina, R.W., Dillman, C.J., and Martin, P.E. (June, 1984- May, 1986). Motor control characteristics of elite shooters. National Rifle Association, \$16,000.

### Internal Grants

- Gerritsen, K.G.M., Martin, P.E., and Marzke, M.W. (July, 1999-June, 2000). Enhancing undergraduate biomedical Lab/Research Experience: Muscle Function. CLAS Grant Award Program to Advance the Quality of Undergraduate Education, \$11,960.
- Hinrichs, R.N. and Martin, P.E. (July, 1997-June, 1998). Improving undergraduate instruction in biomechanics and kinesiology. CLAS Grant Award Program to Advance the Quality of Undergraduate Education, \$5,421.
- Martin, P.E. and Hinrichs, R.N. (January-June, 1996). Enhancing undergraduate biomechanics laboratory instruction: Equipment and Software Needs. CLAS Grant Award Program to Advance Undergraduate Education, \$5,915.
- Hinrichs, R.N., Martin, P.E., Thomas, J.R., and Thomas, K.T. (June-August, 1989). Gender Differences in Mechanics of Children's Throwing: Growth and Practice Contributions. College of Liberal Arts and Sciences Summer Research Awards Program, \$2,800.
- Thomas, J.R., Thomas, K.T., Hinrichs, R.N., and Martin, P.E. (January-May, 1989). Gender Differences in Kinematics and Ground Reaction Forces for Children's Throwing: Growth and Practice Contributions. College of Liberal Arts and Sciences Mini-Grant Program, \$500.
- Martin, P.E. (July-August, 1986). Quantification of gait impairments with age: an equipment request. College of Liberal Arts and Sciences Mini- Grant Program, \$500.
- Martin, P.E., Marzke, M.W., and Chen, S.S.H. (January-December, 1985). An evaluation of magnetic resonance imaging for inertial and anthropometric measurement. University Research Fund, Arizona State University, \$8858.
- Martin, P.E. (April, 1984-March, 1985). An investigation of the mechanics of wheelchair propulsion. NIH Institutional Biomedical Research Support Program, Arizona State University, \$4600.
- Martin, P.E. (January-December, 1984). Examination of the mechanisms by which mechanical work is done on body segments during human movement. Faculty Grant-In-Aid, Arizona State University, \$2995.

### Nonrefereed Publications

#### Journal Articles/Proceedings Papers

- Thomas, J.R. and Martin, P.E. (2001). So how are annual evaluations and raises done at your institution? *The Chronicle of Physical Education in Higher Education* (NAPEHE Newsletter) **12**(3), pp. 1, 16-19.
- Morgan, D.W., Tseh, W., Caputo, J.L., Craig, I.S., Keefer, D.J., and Martin, P.E. (1997). Acquisition of stable treadmill walking mechanics in young children. In N. Armstrong, B. Kirby, and J. Welsman (Eds.), *Children and Exercise XIX* (pp. 217-220). London: E & FN Spon.
- Martin, P.E., Morgan, D.W., and Heise, G.D. (October, 1993). Walking and running economy: Biomechanical considerations. *The '93 International Sport Science Congress (Proceedings)*. Korean Alliance for Health, Physical Education, Recreation and Dance, pp. 334-343.
- Morgan, D.W., Martin, P.E., and Krahenbuhl, G.S. (September/October, 1989). Running economy. Supplement in *The Physician and Sports Medicine* sponsored by Nike, Inc.
- Martin, P.E. (1988). Finger muscles and types of release: a study. *NAA Newsletter*, Summer, 1988, p.5.
- Martin, P.E. (1988). Electromyographic analysis of arrow release: Part II. *NAA Newsletter*, Fall, 1988, pp.3,5.
- Martin, P.E. and Morgan, D.W. (1987). The interaction of stride length, stride rate, and velocity in racewalking. *Arizona Journal of Health, Physical Education, Recreation and Dance*, **28**, 4-7.

- Nelson, R.C. and Martin, P.E. (1985). Effects of gender and load on vertical jump performance. *Biomechanics IX-B (Proceedings of the Ninth International Congress of Biomechanics)*, pp. 429-433. Champaign, Illinois: Human Kinetics.
- Martin, P.E. (1981). Biomechanical analysis of world-class cross-country skiers. In J.M. Cooper and B. Haven (Eds.), *Proceedings of the Biomechanics Symposium*, (pp. 85-91). Indiana University: The Indiana State Board of Health.
- Dillman, C.J. and Martin, P.E. (1980). Biomechanics of cross-country skiing. *Contemporary Orthopaedics*, 2, 259-262.
- Martin, P.E., Dillman, C.J., and Davis, P. (1980). A time interval analysis of cross-country skiing. *Journal of the U.S. Ski Coaches Association*, 3, 30-34.
- Dillman, C.J., India, D.I., and Martin, P.E. (1979). Biomechanical determinations of effective cross-country skiing techniques. *Journal of the U.S. Ski Coaches Association*, 2, 38-42.

## Technical Reports

- Martin, P.E. (1987). Analysis of Isokinetic and Isotonic Knee Flexion and Extension Performed on the MERAC System by Universal. Research Report: Exercise and Sport Research Institute, Arizona State University. Submitted to Universal Gym Equipment, Inc., 18 pp.
- Martin, P.E. (1987). Cinematographic Validation of Angular Velocities of the MERAC System by Universal. Research Report: Exercise and Sport Research Institute, Arizona State University. Submitted to Universal Gym Equipment, Inc., 13 pp.
- Martin, P.E. (1987). Validation of Torque Measurements on the MERAC System by Universal. Research Report: Exercise and Sport Research Institute, Arizona State University. Submitted to Universal Gym Equipment, Inc., 7 pp.
- Martin, P.E., Nelson, R.C., and Shin, I. (1983). Effects of Backpack Frame Length, Pack Load, and Participation Time on the Physical Performance of Men and Women (Tech. Rep. NATICK/TR-83/043). Natick, Massachusetts: U.S. Army Natick Research and Development Laboratories.
- Nelson, R.C. and Martin, P.E. (1982). Volume I. Effects of Gender and Load on Combative Movement Performance (Tech. Rep. NATICK/TR-82/011). Natick, Massachusetts: U.S. Army Natick Research and Development Laboratories.
- Nelson, R.C. and Martin, P.E. (1982). Volume II. Effects of Gender, Load, and Backpack on Easy Standing and Vertical Jump Performance (Tech. Rep. NATICK/TR-82/016). Natick, Massachusetts: U.S. Army Natick Research and Development Laboratories.
- Martin, P.E. and Nelson, R.C. (1982). Volume III. Effects of Gender, Load, and Backpack on the Temporal and Kinematic Characteristics of Walking Gait (Tech. Rep. NATICK/TR-82/021). Natick, Massachusetts: U.S. Army Natick Research and Development Laboratories.
- Martin, P.E., Hinrichs, R.N., Shin, I., and Nelson, R.C. (1982). Volume IV. A Mathematical Model of the Inertial Properties of a Carrier-Backpack System (Tech. Rep. NATICK/TR-82/022). Natick, Massachusetts: U.S. Army Natick Research and Development Laboratories.
- Martin, P.E., Nelson, R.C., and Shin, I. (1982). Effects of Gender, Frame Length, and Participation Time on Load Carrying Behavior (Tech. Rep. NATICK/TR-82/041). Natick, Massachusetts: U.S. Army Natick Research and Development Laboratories.

## Presentations

### International/National Professional Meetings

- Peterson, D.S. and Martin, P.E. Effects of age and walking speed on coactivation during gait. 2009 ASB annual meeting. University Park, PA, August 28, 2009.
- Peterson, D.S. and Martin, P.E. Effects of age and walking speed on metabolic cost and lower extremity joint kinematics during gait in healthy adults. 2009 ASB annual meeting. University Park, PA, August 27, 2009.
- Smith, J.D. and Martin, P.E. Short and longer term changes in amputee walking patterns due to increased prosthesis inertia. 2009 Gait and Clinical Motion Analysis Society annual meeting. Denver, CO, March 11, 2009.
- Martin, P.E. Kinesiology curricula: what's at our core? (Keynote presentation) American Kinesiology Association Department Chair Seminar: Reexamining the Undergraduate Curriculum in a Time of Change. Orlando, FL, February 5, 2009.
- van Werkhoven, H., Sommer III, H.J., Martin, P.E. Refinements of moment-based cost functions improve prediction of experimental moment profiles in cycling. 2008 North American Congress on Biomechanics. Ann Arbor, MI, August 8, 2008.
- Heise, G.D., Smith, J.D., and Martin, P.E. Lower extremity mechanical work explains interindividual variability of running economy. 2008 North American Congress on Biomechanics. Ann Arbor, MI, August 8, 2008.
- Smith, J.D. and Martin, P.E. Muscular demands during prosthetic leg swing increase due to increased interactions among segments. 2008 North American Congress on Biomechanics. Ann Arbor, MI, August 8, 2008.
- Peterson, D.S. and Martin, P.E. Effects of walking speed on step width and step length variability. 2008 North American Congress on Biomechanics. Ann Arbor, MI, August 6, 2008.
- Martin, P.E. Physical education and physical activity programs and opportunities at Penn State University. 2008 Conference on University Physical Education and Sport in Kyushu. Yufu, Kyushu, Japan, March 13, 2008.
- Smith, J.D. and Martin, P.E. Metabolic costs and walking symmetry of trans-tibial amputees are influenced by prosthetic mass distribution. 2007 ASB Annual Meeting. Palo Alto, CA, August 22-25, 2007.
- Martin, P.E. Biomechanics: The demise of sport biomechanics and the rise of integrative biomechanics. Invited presentation. 2005 American Academy of Kinesiology and Physical Education annual meeting. Dallas, Texas, October 1, 2005

- Umberger, B.R. and Martin, P.E. Mechanical Efficiency During Walking At Different Stride Rates. Joint meeting: XXth Congress of the International Society of Biomechanics and 29th Annual Meeting of the American Society of Biomechanics. Cleveland, Ohio, August 5, 2005.
- Smith, J.D., Martin, P.E., and Mattes, S.J. Intersegmental Dynamics Of The Swing Phase Of Walking In Trans-Tibial Amputees. Joint meeting: XXth Congress of the International Society of Biomechanics and 29th Annual Meeting of the American Society of Biomechanics. Cleveland, Ohio, August 4, 2005.
- Gaines, A.R., Hinrichs, R.N., and Martin, P.E. Muscle function in the generation of propulsive and braking forces during running. 2004 ASB annual meeting. Portland, OR, September 10, 2004.
- Umberger, B.R., Gerritsen, K.G.M., and Martin, P.E. Dependence of muscle energy expenditure on stride rate in walking. 2004 ACSM annual meeting. Indianapolis, IN, June 2, 2004.
- Smith, J.D. and Martin, P.E. Short and long term adaptations in walking symmetry caused by asymmetric lower extremity loading. Ninth Annual Meeting of the Gait and Clinical Movement Analysis Society. Lexington, KY, April 23, 2004.
- Martin, P.E. Future directions for Departments of Kinesiology in the United States. Invited keynote presentation at the Japan Society of Physical Education, Health, and Sport Sciences (Tokyo branch). University of Tokyo, Tokyo, Japan, March 6, 2004.
- Hunter, R.D., Martin, P.E., and Umberger, B.R. Gender differences in muscle recruitment patterns during landing. 2003 ASB annual meeting. Toledo, OH, September 26, 2003.
- Umberger, B.R. and Martin, P.E. Mechanics and energetics of walking at different stride rates. 2003 ASB annual meeting. Toledo, OH, September 25, 2003.
- Martin, P.E. Trends in interdisciplinary and integrative research: an NSF IGERT example. Invited presentation. American Academy of Kinesiology and Physical Education annual meeting, Tucson, AZ, September 27, 2002.
- Martin, P.E., Smith, J.D., and Royer, T.D. Adaptations in lower extremity joint kinetics to inertial asymmetries during walking. IVth World Congress on Biomechanics, Calgary, Alberta, Canada, August 8, 2002.
- Umberger, B.R., Gerritsen, K.G.M., and Martin, P.E. Muscle fiber type effects on energetically optimal pedalling cadence. IV World Congress on Biomechanics, Calgary, Alberta, Canada, August 4, 2002.
- Morgan, D.W., Tseh, W., Caputo, J.L., Keefer, D.J., Craig, I.S., Griffith, K.B., Akins, M.B., Griffith, G.E., Sutika, K.M., Martin, P.E., and Krahenbuhl, G. S. Longitudinal stratification of gait economy in children. 2002 ACSM annual meeting, St. Louis, MO, May, 2002.
- Umberger, B.R., Gerritsen, K.G.M., and Martin, P.E. A model of human muscle energy expenditure. 2001 ASB annual meeting. San Diego, CA, August 10, 2001.
- Royer, T.D. and Martin, P.E. Mechanical power does not reflect metabolic cost of walking with leg loads. 2001 ASB annual meeting. San Diego, CA, August 10, 2001.
- Martin, P.E., Sanderson, D.J., and Umberger, B.R. The effect of power output and cycling cadence on lower extremity emg responses in recreational cyclists. XXVIIIth International Congress on Biomechanics, Zurich, Switzerland, July 12, 2001.
- Royer, T.D. and Martin, P.E. Altered motor control strategies during the swing phase of walking with leg loads. 2001 ACSM annual meeting, Baltimore, MD, June 1, 2001.
- Morgan, D.W., Akins, M., Boblett, K., Caputo, J., Craig, I., Griffith, G., Keefer, D., Krahenbuhl, G., Martin, P., and Tseh, W. Prediction of walking economy in children. 2001 ACSM annual meeting, Baltimore, MD, May 30, 2001.
- Morgan, D.W., Akins, M., Boblett, K., Caputo, J., Craig, I., Griffith, G., Keefer, D., Martin, P.E., and Tseh, W. Longitudinal profiles of oxygen uptake during treadmill walking in able-bodied children. 2001 Gait and Clinical Movement Analysis Society annual meeting, Sacramento, CA, April 27, 2001.
- Martin, P.E. What role should biomechanics play in advancing our understanding of the golf swing and performance? Invited presentation at the 2001 Future of Golf Conference, Tempe, AZ, March 14, 2001.
- Royer, T.D. and Martin, P.E. Different leg inertial properties yield similar stride times. 2000 ASB annual meeting, Chicago, IL, July 22, 2000.
- Martin, P.E., Royer, T.D., and Stelmach, G.E. Bimanual control of the upper extremities: responses to expected and unexpected perturbations. 2000 ASB annual meeting, Chicago, IL, July 21, 2000.
- Slade, J.M., Landers, D.M., and Martin, P.E. Muscular activity during real and imagined movements: a test of the inflow hypothesis. 2000 NASPSPA annual meeting, San Diego, CA, June 8, 2000.
- Tiessen, D.A., Sanderson, D.J., Martin, P.E., and MacKenzie, D.C. The effect of cadence on the rate of neuromuscular fatigue and the slow component of oxygen uptake in cyclists during heavy exercise. 2000 ACSM annual meeting, Indianapolis, IN, June 3, 2000.
- Martin, P.E., Sanderson, D.J., and Czerniecki, J.M. Biomechanical, neuromuscular, and economy considerations for amputee locomotion. 2000 ACSM annual meeting, Indianapolis, IN, June 1, 2000.
- Martin, P.E. Biomechanical considerations for economical amputee locomotion. 2000 ACSM annual meeting, Indianapolis, IN, June 1, 2000.
- Morgan, D.W., Tseh, W., Caputo, J.L., Craig, I.S., Keefer, D.J., and Martin, P.E. Variability in the aerobic demand of walking and running in young children. 2000 ACSM annual meeting, Indianapolis, IN, June 1, 2000.
- Umberger, B.R. and Martin, P.E. Testing the planar assumption during ergometer cycling. 2000 ACSM annual meeting, Indianapolis, IN, June 1, 2000.
- Royer, T.D. and Martin, P.E. Independent manipulations of leg mass and moment of inertia similarly impact metabolic energy cost. 2000 ACSM annual meeting, Indianapolis, IN, May 31, 2000.
- Kao, J.C., Martin, P.E., and Robertson, S.D. Variability of intralimb coordination during the walk-to-run and run-to-walk transitions. Canadian Society for Psychomotor Learning and Sport Psychology (SCAPPS), Edmonton, Alberta, Canada, October 30, 1999.
- Kao, J.C., Payne, V.G., Thomas, J.R., and Martin, P.E. Comparison and evaluation of six collective variables and three attractor state estimates of walking and running. 1999 Gait and Clinical Movement Analysis Society annual meeting, Dallas, TX, March 11, 1999.
- Royer, T.D. and Martin, P.E. Effects of asymmetrical lower-extremity inertial loads on the walking stride period. 1999 Gait and Clinical Movement Analysis Society annual meeting, Dallas, TX, March 11, 1999.
- Mattes, S.J., Martin, P.E., and Royer, T.D. The effect of prosthetic limb mass on walking energy cost of trans-tibial amputees. 1999 Gait and Clinical Movement Analysis Society annual meeting, Dallas, TX, March 11, 1999.
- Morgan, D.W., Tseh, W., Caputo, J.L., Keefer, D.J., Craig, I.S., Boblett, K.E., Griffith, G.E., Krahenbuhl, G.S., and Martin, P.E. Longitudinal stratification of walking and running economy in young boys and girls. 1999 AAHPERD annual meeting, Boston, MA, April 21, 1999.
- Sanderson, D.J., Honeyman, G., Keefer, J., and Martin, P.E. Gastrocnemius and Soleus muscle length and emg responses to changes in pedaling cadence. 1999 ACSM annual meeting, Seattle, WA, June 5, 1999.
- Martin, P.E. Age-related deficits in walking mechanics and energy cost. XVIIth International Congress on Biomechanics, Calgary, Alberta, Canada, August 9, 1999.

- Heise, G.D., Martin, P.E., and Sanderson, D.J. Leg stiffness in below-knee amputees during running. XVIIth International Congress on Biomechanics, Calgary, Alberta, Canada, August 10, 1999.
- Morgan, D.W., Tseh, W., Caputo, J.L., Keefer, D., and Martin, P.E. Effect of step length manipulation on the aerobic demand of walking in young children. XXth International Symposium of the European Group of Pediatric Work Physiology, Rome, Italy, September, 1999.
- Morgan, D.W., Tseh, W., Caputo, J.L., Craig, I.S., Keefer, D.J., and Martin, P.E. Influence of walking speed on gait mechanics in young children. 1998 AAHPERD annual meeting, Reno, NV, April 6, 1998.
- Martin, P.E. Aging, exercise, and the predisposition to falls: Introduction. 1998 ACSM annual meeting, Orlando, FL, June 5, 1998.
- Martin, P.E. and Sanderson, D.J. Asymmetrical lower extremity power profiles in unilateral below knee amputees during running. 1998 ACSM annual meeting, Orlando, FL, June 6, 1998.
- Royer, T.D., Martin, P.E., and Stelmach, G.E. Bimanual movement outcome in response to an initial symmetrical control strategy. 1998 ACSM annual meeting, Orlando, FL, June 6, 1998.
- Martin, P.E., Cheetham, P.J., and Crews, D. Swing mechanics variability as a function of age and skill level. World Scientific Congress of Golf, St. Andrews, Scotland, July 21, 1998.
- Royer, T.D. and Martin, P.E. Effects of asymmetrical lower extremity inertial characteristics on motor control symmetry during walking. Third North American Congress on Biomechanics. Waterloo, Ontario, Canada, August, 1998.
- Morgan, D.W., Tseh, W., Caputo, J.L., Craig, I.S., Keefer, D.J., and Martin, P.E. Sex differences in running economy of young children. 1997 AAHPERD annual meeting, St. Louis, MO, March, 1997.
- Morgan, D.W., Martin, P.E., Tseh, W., Caputo, J.L., Craig, I.S., and Keefer, D.J. Relationship between preferred and energetically optimal walking speeds in young children. 1997 ACSM annual meeting, Denver, CO, May 28, 1997.
- Martin, P.E., Royer, T.D., and Mattes, S.J. Effect of symmetrical and asymmetrical lower extremity inertia changes on walking economy. 1997 ACSM annual meeting, Denver, CO, May 29, 1997.
- Royer, T.D., Martin, P.E., and Mattes, S.J. Perturbability of temporal symmetry of gait by symmetrical and asymmetrical lower extremity inertia changes. 1997 ACSM annual meeting, Denver, CO, May 29, 1997.
- Morgan, D.W., Martin, P.E., Tseh, W., Caputo, J.L., Craig, I.S., and Keefer, D.J. Profiles of oxygen uptake and gait mechanics in young children during treadmill walking and running. 1997 annual meeting of the American Physical Therapy Association, San Diego, CA, June, 1997.
- Neal, R.J., Martin, P.E., Royer, T.D., Vint, P.V., McLean, S., and Aitken, D.A. Cycling kinematics at three power outputs – bilateral differences. XVIth International Congress on Biomechanics. Tokyo, Japan, August 26, 1997.
- Rand, M.K., Wunderlich, D.A., Martin, P.E., Stelmach, G.E., and Bloedel, J.R. Adaptive changes in responses to repeated locomotor perturbations. XVIth International Congress on Biomechanics. Tokyo, Japan, August 26, 1997.
- Morgan, D.W., Tseh, W., Caputo, J.L., Craig, I.S., Keefer, D.J., and Martin, P.E. Acquisition of stable treadmill walking mechanics in young children. 1997 meeting of the European Group of Pediatric Work Physiology, Devon, England, September, 1997.
- Mattes, S.J., Martin, P.E., and Royer, T.D. Manipulations of the inertial characteristics of below-knee prostheses: Effects on symmetry and energy expenditure of walking. 1997 ASB annual meeting, Clemson, SC, September 26, 1997.
- Martin, P.E. and Sanderson, D.J. Lower extremity kinetics of unilateral below-knee amputees during walking and running. Invited presentation at the 1997 Continuing Education Conference of the American Academy of Orthotists and Prosthetists, Portland, OR, October 4, 1997.
- Martin, P.E. Biomechanical and physiological aspects of cycling behavior: an introduction. Symposium introduction. 1996 ACSM annual meeting, Cincinnati, OH, May 29, 1996.
- Martin, P.E. Postural control and gait deficiencies in older adults: an introduction. Symposium introduction. 1996 ACSM annual meeting, Cincinnati, OH, June 1, 1996.
- Martin, P.E. Deficiencies in gait economy and mechanics in elderly adults. Symposium presentation at the 1996 ACSM annual meeting, Cincinnati, OH, June 1, 1996.
- Seidler, R.D. and Martin, P.E. The effects of balance training on the postural control of older adults. 1996 biennial meeting of the Canadian Society of Biomechanics, Vancouver, British Columbia, August 23, 1996.
- Marsh, A.P., Martin, P.E., and Sanderson, D.J. Minimization of a joint moment cost function and preferred cycling cadence. 1996 ASB annual meeting, Atlanta, GA, October 18, 1996.
- Heise, G.D., Martin, P.E., and Carroll, P.S. Ground reaction force characteristics and running economy. 1996 ASB annual meeting, Atlanta, GA, October 18, 1996.
- Marsh, A.P. and Martin, P.E. The effect of power output and maximal aerobic power on aerobic demand, RPE and preferred cycling cadence. 1995 ACSM annual meeting. Minneapolis, June 2, 1995.
- Heise, G.D. and Martin, P.E. Correlations between "leg spring" characteristics and running economy. 1995 ASB annual meeting, Palo Alto, CA, August 26, 1995.
- Rand, M.K., Wunderlich, D.A., Martin, P.E., Stelmach, G.E., and Bloedel, J.R. Responses to repeated locomotor perturbations in cerebellar patients. 1995 Society for Neuroscience annual meeting, San Diego, CA, November 13, 1995.
- Martin, P.E., Marsh, A.P., and Larish, D.D. Effect of Strength Training on the Walking Stride Length-Economy Relationship in the Elderly. 1994 ACSM annual meeting. Indianapolis, June 4, 1994.
- Hreljac, A. and Martin, P.E. Quantifying the Smoothness of Human Gaits. 1994 Canadian Society of Biomechanics biennial meeting, Calgary, Alberta, August 19, 1994.
- Sanderson, D.J. and Martin, P.E. Joint Kinetics in Unilateral BK Amputees during Running. 1994 Canadian Society of Biomechanics biennial meeting, Calgary, Alberta, August 19, 1994.
- Vint, P.F., DeWitt, J.K., Marsh, A.P., McLean, S.P., Seidler, R.D., Sherwood, C.P., Hinrichs, R.N., and Martin, P.E. Differences between one-foot and two-foot vertical jump performances. 1994 ASB annual meeting, Columbus, OH, October 14, 1994.
- Martin, P.E., Marsh, A.P., Burton, D., and Larish, D.D. Postural Control and Preferred Walking Speed of Elderly Adults: Relationship with Plantar Flexor Strength. XIVth International Congress on Biomechanics. Paris, France, July 7, 1993.
- Sanderson, D.J. and Martin, P.E. Joint kinetics in unilateral below knee amputees during walking. XIVth International Congress on Biomechanics. Paris, France, July 5, 1993.
- Martin, P.E., Marsh, A.P., Burton, D., and Larish, D.D. Effect of Strength Improvement on Postural Control and Preferred Walking Speed of Elderly and Young Adults. 1993 ASB annual meeting. Iowa City, IA, October 23, 1993.
- Marsh, A.P., Martin, P.E., Burton, D.D., and Larish, D.D. Postural Control and Preferred Walking Speed of Active and Sedentary Elderly Adults: Relationship with Plantar and Dorsi Flexor Strength. 1993 ASB annual meeting, Iowa City, IA, October 23, 1993.

- Hinrichs, R.N., Thomas, J.R., Martin, P.E., Thomas, K.T., Marzke, M., Joganich, T., DeWitt, J.K., and Sherwood, C.P. 3-D Analysis of Throwing Patterns of Young Boys and Girls. 1993 ASB annual meeting, Iowa City, IA, October 22, 1993.
- Martin, P.E., Morgan, D.W., and Heise, G.D. Walking and Running Economy: Biomechanical Considerations. Invited presentation at The '93 International Sport Science Congress (sponsored by the Korean Alliance for Health, Physical Education, Recreation and Dance), Seoul, Korea, October 28, 1993.
- Martin, P.E., Hreljac, A., Rothstein, D.E., and Larish, D.D. Aerobic Demand Response of Old and Young Adults to Stride Length and Cadence Manipulation. 1992 ACSM annual meeting. Dallas, May 29, 1992.
- Morgan, D.W., Martin, P.E., Craib, M., Caruso, C., Clifton, R., and Hopewell, R. Effects of Step Length Optimization on Aerobic Demand of Running. 1992 ACSM annual meeting. Dallas, May 29, 1992.
- Martin, P.E., Hreljac, A., Marsh, A.P., and Rothstein, D.E. Mechanical Power Response of Old and Young Adults to Walking Stride Length and Cadence Manipulation. Second North American Congress on Biomechanics. Chicago, August 26, 1992.
- Marsh, A.P. and Martin, P.E. The Relationship between Cadence,  $VO_2$ , and EMG in a Group of Cyclists and Non-Cyclists. Second North American Congress on Biomechanics. Chicago, August 26, 1992.
- Martin, P.E. Biomechanical Considerations for Economical Running. 1991 ACSM annual meeting. Orlando, FL, May 29, 1991.
- Joganich, T. and Martin, P.E. Influence of Orthotics on Lower Extremity Function in Cycling. 1991 ASB annual meeting, Tempe, AZ, October 17, 1991.
- Hreljac, A. and Martin, P.E. Relationship between Economy and Jerk-Cost during Walking. 1991 ASB annual meeting. Tempe, AZ, October 17, 1991.
- Martin, P.E. and Heise, G.D. Archery Bow Grip Force Distribution: Relationship with Skill Level and Fatigue. XIIIth International Congress on Biomechanics. Perth, Australia, December 9, 1991.
- Marsh, T. and Martin, P.E. The Effect of Stride Length Manipulations on Ground Reaction Forces during Walking. XIIIth International Congress on Biomechanics. Perth, Australia, December 9, 1991.
- Sanderson, D.J. and Martin, P.E. Analysis of Walking Kinetics in Below Knee Amputees. XIIIth International Congress on Biomechanics. Perth, Australia, December 10, 1991.
- Heise, G.D. and Martin, P.E. Interrelationships among Mechanical Power Measures and Running Economy. 1990 ACSM annual meeting. Salt Lake City, May 22, 1990.
- Rothstein, D., Larish, D.D., Martin, P.E., and Mungiole, M. Economy of Walking in the Aged. 1990 ACSM annual meeting. Salt Lake City, May 22, 1990.
- Cavanagh, P.R., Robinson, J., McClay, I.S., Andriacchi, T., Edington, C.J., Frederick, E.C., Gross, E., Hass, S., Lake, M.J., Martin, P.E., Miller, T.A., Scott, N., Valiant, G., and Williams, K.R. A Biomechanical Perspective on Stress Fractures in Professional Basketball Players. 1990 ACSM annual meeting. Salt Lake City, May 24, 1990.
- Martin, P.E., Heise, G.D., and Morgan, D.W. Comparison of Mechanical Power and Aerobic Demand during Walking. 1990 ASB annual meeting. Miami, November 15, 1990.
- Miller, T.A., Martin, P.E., and Wells, C.L. The Effect of Position and Cadence on the Biomechanical Characteristics of Hill Climbing Cyclists. 1988 ASB annual meeting. Urbana, Illinois, September 30, 1989.
- Martin, P.E. Undergraduate and Graduate Biomechanics: What Do We Teach and Why? Invited Presentation at the 1989 AAHPERD annual meeting. Boston, MA, April 21, 1989.
- Martin, P.E. Biomechanical Considerations for Economical Gait (Part of a symposium entitled "Factors Affecting Running Economy in Children and Adults"). 1989 AAHPERD annual meeting. Boston, MA, April 21, 1989.
- Morgan, D.W., Martin, P.E., Krahenbuhl, G.S., and Baldini, F. Daily Stability in Running Economy and Running Mechanics. 1989 ACSM annual meeting. Boston, MA, April 20, 1989.
- Martin, P.E. and Morgan, D.W. Relationship between Mechanical Power and Running Economy. 1989 ACSM annual meeting. Baltimore, MD, June 2, 1989.
- Morgan, D.W., Martin, P.E., Baldini, F.D., and Krahenbuhl, G.S. Effects of a Prolonged Maximal Run on Running Economy and Running Mechanics. 1989 ACSM annual meeting. Baltimore, MD, May 31, 1989.
- Martin, P.E., Morgan, D.W., and Heise, G.D. The Effect of Lower Extremity Inertia Manipulation on Walking Economy and Mechanics. XIIth International Congress of Biomechanics. Los Angeles, CA, June 28, 1989.
- Siler, W.L. and Martin, P.E. A Biomechanical Analysis of Changes in Running Technique during a Treadmill Run to Volitional Exhaustion. XIIth International Congress of Biomechanics. Los Angeles, CA, June 29, 1989.
- Martin, P.E., Siler, W.L., and Hoffman, D. Contributions of Forearm and Shoulder Musculature to Arrow Release in Skilled and Less-Skilled Archers. 1988 AAHPERD annual meeting. Kansas City, Missouri, April 7, 1988.
- Mungiole, M., Martin, P.E., and Larish, D.D. Age-Related Differences in Vertical and Anterior/Posterior Impulses during Walking. 1988 AAHPERD annual meeting. Kansas City, Missouri, April 7, 1988.
- Morgan, D.W., Martin, P.E., and Baldini, F.D. Association between Body Structure and Distance Running Performance in Well-Trained Male Runners. 1988 AAHPERD annual meeting. Kansas City, Missouri, April 7, 1988.
- Martin, P.E., Mungiole, M., and Siler, W.L. Body and Bow Stability of Experienced Archers. 1988 ACSM annual meeting. Dallas, Texas, May 28, 1988.
- Morgan, D.W., Martin, P.E., Baldini, F.D., and Krahenbuhl, G.S. Biomechanical Correlates of Economical Running. 1988 ACSM annual meeting. Dallas, Texas, May 26, 1988.
- Miller, T.A., Wells, C.L., and Martin, P.E. The Effect of Position and Cadence on the Cardiovascular Response of Uphill Cyclists. 1988 ACSM annual meeting. Dallas, Texas, May 27, 1988.
- Marzke, M.W., Martin, P.E., and Mungiole, M. Use of Magnetic Resonance Imaging for Measurement of Tissue Distribution in the Analysis of Primate Locomotion. 56th Annual Meeting of the American Association of Physical Anthropologists. New York, New York, April 2, 1987.
- Martin, P.E., Fernhall, B., and Krahenbuhl, G.S. (presenting author). The Effect of Workout Intensity on Running Economy and Mechanics. The Hong Kong Sports Medicine Conference. Hong Kong, April 11, 1987.
- Larish, D.D., Martin, P.E., and Mungiole, M. Age Differences in the Temporal/Kinematic Pattern of Walking. 1987 AAHPERD annual meeting. Las Vegas, Nevada, April 14, 1987.
- Martin, P.E. and Mungiole, M. Body Stability Differences between Skilled and Less-Skilled Archers. 1987 AAHPERD annual meeting. Las Vegas, Nevada, April 16, 1987.
- Siler, W.L., Martin, P.E., and Mungiole, M. Kinematic Modifications due to Speed Changes during Wheelchair Propulsion. 1987 AAHPERD annual meeting. Las Vegas, Nevada, April 16, 1987.

- Morgan, D.W., Baldini, F.D., Martin, P.E., and Kohrt, W.M. 10 Km Performance and Velocity at VO<sub>2</sub> Max in a Homogeneous Group of Well-Trained Male Runners. 1987 AAHPERD annual meeting. Las Vegas, Nevada, April, 1987.
- Martin, P.E., Siler, W.L., and Hoffman, D. Electromyographic Analysis of Arrow Release in Highly Skilled Archers. XIth International Congress of Biomechanics. Amsterdam, The Netherlands, July 1, 1987.
- Martin, P.E., Larish, D.D., and Mungiole, M. Age Related Differences in Ground Reaction Force Characteristics during Walking. 1987 ASB annual meeting. Davis, California, September 18, 1987.
- Landers, D.M., Martin, P.E., Siler, W.L., and Hoffman, D. Imagery versus Shooting EMG in Archers of Varying Ability. 11<sup>th</sup> American Imagery Conference. New York, New York, November 7, 1987.
- Martin, P.E. The Influence of Lower Extremity Loading on Joint Kinetics during the Recovery Phase of Running. 1986 AAHPERD annual meeting. Cincinnati, Ohio, April 10, 1986.
- Martin, P.E., Mungiole, M., Marzke, M.W., and Longhill, J. The Use of Magnetic Resonance Imaging for Estimating Segmental Inertial Properties. 1986 ACSM annual meeting. Indianapolis, Indiana, May 30, 1986.
- Morgan, D.W., Martin, P.E., and Kohrt, W.M. Relationship between Distance- Running Performance and Velocity at VO<sub>2</sub> Max in Well-Trained Runners. 1986 ACSM Annual Meeting. Indianapolis, Indiana, May 29, 1986.
- Mungiole, M. and Martin, P.E. Estimating Segmental Inertial Properties: Magnetic Resonance Imaging versus Existing Methods. North American Congress on Biomechanics. Montreal, Quebec, Canada, August 25, 1986.
- Martin, P.E. and Siler, W.L. An Examination of Mechanical Energy Transfers amongst Lower Extremity Segments during a Kicking Motion. North American Congress on Biomechanics. Montreal, Quebec, Canada, August 25, 1986.
- Larish, D.D., Martin, P.E., and Mungiole, M. Characteristic Patterns of Gait in the Healthy Old. Invited Presentation at the New York Academy of Sciences. White Plains, New York, October 1, 1986.
- Wang, M.Q., Martin, P.E., and Landers, D.M. An Investigation of the Cardiac and Somatic Responses during a Simple Reaction Time Task. 1986 Society for Psychophysiological Research annual meeting. Montreal, Quebec, Canada, October 16, 1986.
- Morgan, D.W. and Martin, P.E. Effects of Stride Length Manipulation on Racewalking Economy. 1985 AAHPERD annual meeting. Atlanta, Georgia, April 22, 1985.
- Martin, P.E. and Cavanagh, P.R. Segmental Interactions within the Lower Extremity during the Recovery Phase of Running. 1985 4ACSM annual meeting. Nashville, Tennessee, May 27, 1985.
- Siler, W.L. and Martin, P.E. Mechanical Interactions of the Thigh and Shank during Simple Leg Swing Tasks. 1985 ASB annual meeting. Ann Arbor, Michigan, October 4, 1985.
- Martin, P.E. The Effect of Lower Extremity Loading on Mechanical and Physiological Measures of Running Performance. 1984 ACSM annual meeting. San Diego, California, May 25, 1984.
- Martin, P.E. Mechanical Work Done on the Lower Extremities During the Recovery Phase of Loaded Running. 1984 ASB annual meeting. Tucson, Arizona, October 5, 1984.
- Martin, P.E. and Nelson, R.C. The Effects of Gender and Load on Walking Performance. 1983 ACSM annual meeting. Montreal, Quebec, Canada, May 21, 1983.
- Nelson, R.C. and Martin, P.E. The Effects of Gender and Load on Vertical Jump Performance. IXth International Congress of Biomechanics. Waterloo, Ontario, Canada, August 9, 1983.
- Martin, P.E. Biomechanical Analysis of World Class Cross-Country Skiers. Big Ten CIC Physical Education Body of Knowledge Biomechanics Symposium. Bloomington, Indiana, October 27, 1980.

## Regional/State/Local Professional Meetings

- Martin, P.E. Biomechanical considerations for economical and effective cycling performance. 2006 Mid-Atlantic Regional Chapter of ACSM annual meeting. Harrisburg, PA, November 10, 2006.
- Smith, J.D. and Martin, P.E. Intersegmental dynamics of the swing phase of walking are altered by inertial changes. Midwest Graduate Student Biomechanics Symposium, Toledo, OH, April 4, 2003.
- Umberger, B.R., Martin, P.E., and Gerritsen, K.G.M. A theoretical study of the energetic cost of human walking. Life and Earth Science Graduate Research Symposium, ASU, February 12, 2002.
- Rand, M.K., Wunderlich, D.A., Martin, P.E., Stelmach, G.E., and Bloedel, J.R. Adaptive changes in responses to repeated locomotor perturbations. Flinn Foundation Biomedical Research Symposium. Tucson, AZ, May 6, 1997.
- Martin, P.E. Biomechanical factors associated with movement economy: applications in gait and cycling. Invited presentation at the 1996 Southeast ACSM annual meeting. February 2, 1996.
- DeWitt, J.K., Teulings, H.L., Stelmach, G.E., and Martin, P.E. Reliability of a 3-D optoelectric device for fine motor control measurement. Flinn Foundation Biomedical Symposium. Phoenix, AZ, March 11, 1994.
- Boyd-Topolski, M.E., Martin, P.E., DeWitt, J.K., Stelmach, G.E., and Bloedel, J.R. Torque control of upper extremity movements with different joint coupling. Flinn Foundation Biomedical Symposium. Phoenix, AZ, March 11, 1994.
- Martin, P.E. Do Mechanical and Anatomical Factors Explain Interindividual Differences in Walking and Running Economy? Invited Presentation at the 1989 Texas ACSM annual meeting. College Station, TX, October 28, 1989.
- Morgan, D.W., Martin, P.E., Krahenbuhl, G.S. Running Economy: Physiological and Biomechanical Considerations. 1989 North Carolina AHPERD annual meeting. Greensboro, NC, December 1, 1989.
- Morgan, D.W., Martin, P.E., Krahenbuhl, G.S., and Daniels, J.T. Importance of Running Economy for Endurance Performance. 1988 Northwest AHPERD annual meeting. Pullman, WA, March 4, 1988.
- Mungiole, M., Martin, P.E., and Morgan, D.W. Achilles Tendon Moment Arm Variation in Well-Trained Runners. 1987 SWACSM annual meeting. Las Vegas, Nevada, November 6, 1987.
- Martin, P.E. Exploring Opportunities in Exercise Science: Biomechanics. Invited Presentation at the 1986 Annual Convention of the Southwest District of AAHPERD. Phoenix, Arizona, May 9, 1986.
- Morgan, D.W., Baldini, F.D., and Martin, P.E. Day-to-Day Stability in Running Economy and Step Length among Well-Trained Male Runners. 1986 SWACSM. Las Vegas, Nevada, November 7, 1986.
- Martin, P.E. An Assessment of Variable Reliability for Running Mechanics. 1985 SCACSM annual meeting. Las Vegas, Nevada, November 8, 1985.
- Martin, P.E. Biomechanical Determinants of Effective Cross-Country Skiing Techniques on Uphill Terrain. Illinois AAHPER annual meeting. Chicago, Illinois, December 7, 1979.

## Research Seminars Presented at Universities

- Martin, P.E. and Peterson, D.S. Effects of age and speed on energy cost and antagonist muscle coactivation during walking. Department of Kinesiology, Iowa State University, Ames, IA, December 5, 2008.
- Martin, P.E. Biomechanical considerations for economical and effective cycling performance. Institute for Health Science, Kyushu University, Kasuga City, Fukuoka, Japan. March 11, 2008.
- Martin, P.E. Factors affecting preferred rates of movement in cyclic activities. RIKEN Institute. Tokyo, Japan, March 8, 2004.
- Martin, P.E. Intersegmental analysis of the swing phase in transtibial amputees. Action Club (motor control seminar). Penn State University, University Park, PA, February 17, 2004.
- Martin, P.E. Factors affecting preferred rates of movement in cyclic activities. Seminar Series on Neural and Musculoskeletal Adaptations. Arizona State University, Tempe, AZ, March 8, 2001.
- Martin, P.E. Exercise Science and Physical Education: Strengths, weaknesses, challenges, and opportunities. Department of Exercise Science and Physical Education, Arizona State University, Tempe, AZ, February 7, 2001.
- Martin, P.E. Factors affecting preferred rates of movement in cyclic activities. Department of Kinesiology. University of Illinois, Champaign, IL, March 27, 2000.
- Martin, P.E. Gait economy and mechanics in trans-tibial amputees. Department of Health and Exercise Science, Wake Forest University, Winston-Salem, NC, March 2, 2000.
- Martin, P.E. Lower extremity inertial alterations: implications for gait mechanics and economy. School of Human Kinetics, University of British Columbia, December 2, 1999.
- Martin, P.E., Royer, T.D., and Stelmach, G.E. Bilateral movement responses to known and unknown inertial manipulations. School of Human Kinetics, University of British Columbia, April 27, 1999.
- Martin, P.E. Walking Energetics and Mechanics in Below Knee Amputees and Able-bodied Individuals. Department of Exercise Science, University of California, Davis, March 5, 1999.
- Martin, P.E. Biomechanical Considerations for Economical Locomotion. Department of Exercise Science and Physical Education, Arizona State University, April 22, 1998.
- Martin, P.E. Lower Extermity Inertia Manipulation: Implications for Gait Mechanics and Economy. Department of Health and Human Performance, Iowa State University, October 8, 1998.
- Martin, P.E. and Marsh, A.P. Discrepancies between Preferred and Most Economical Cycling Cadence: Issues of Cycling Experience and Fitness Level. School of Human Kinetics, University of British Columbia, Vancouver, B.C., March 21, 1995.
- Martin, P.E. Biomechanical Considerations for Gait Economy in the Aged. School of Human Kinetics, University of British Columbia, Vancouver, B.C., March 21, 1995.
- Martin, P.E. and Marsh, A.P. Preferred Cycling Cadence: Economy and Electromyographical Implications. Korea Sport Science Institute, Seoul, Korea, October 30, 1993.
- Martin, P.E. Biomechanical Considerations for Gait Economy in the Aged. Korea Sport Science Institute, Seoul, Korea, October 30, 1993.
- Martin, P.E. Biomechanical Considerations for Gait Economy in the Aged. Department of Exercise and Sport Sciences, University of North Carolina, Greensboro. Greensboro, September 11, 1992.
- Martin, P.E. Do Mechanical and Anatomical Factors Explain Interindividual Differences in Walking and Running Economy? School of Physical Education, University of British Columbia, Vancouver, B.C.: November 2, 1990.
- Martin, P.E. Biomechanical Analyses of Archery Shooting Technique: Considerations of Muscle Activation Patterns and Body Stability. Biomechanics Laboratory, Department of Exercise and Sport Science, Penn State University, State College, PA, July 8, 1988.
- Martin, P.E. Mechanical Considerations for Economical Walking and Running. Biomechanics Laboratory, Department of Exercise and Sport Science, Penn State University, State College, PA: July 15, 1988.
- Martin, P.E. Principles Underlying the Mechanics of Gait. Presented to the Arizona State University Chapter of Sigma Xi. Tempe, AZ, September 22, 1987.
- Martin, P.E. Mechanical Considerations for Economical Walking and Running. Department of Exercise and Sport Sciences, University of Arizona. Tucson, AZ, October 14, 1987.

## Other Invited Workshop, Seminar, and Class Presentations

- Martin, P.E. The Gary Krahenbuhl Story (presentation at the Gary S. Krahenbuhl Roast). Arizona State University, Tempe, January 11, 2001.
- Martin, P.E. Career Opportunities in exercise science and physical education. Saguaro High School, Scottsdale, April 8, 1998.
- Martin, P.E. Exercise Science seminar. Dept. of ESPE, ASU, Spring, 1998.
- Martin, P.E. Cross-Disciplinary Graduate Training in Exercise Science and Physical Education. Department of Health and Human Performance, Iowa State University, October 8, 1998.
- Martin, P.E. Biomechanics of Motion: Career Opportunities. Presented to two biotechnology classes at Paradise Valley High School, Phoenix, May 2, 1995; January 8, 1997.
- Martin, P.E. The Benefits of Exercise for the Chronologically Mature. Scottsdale Masonic Lodge, February 28, 1997.
- Guest class lectures and seminar presentations: PED 505 Research Laboratory, "Overview of biomechanics research methods", Fall, 1983-Fall, 1988; PED 594 Exercise Science Graduate Seminar, "The effect of lower extremity loading on running mechanics", Spring, 1987; CHE 494 Biocontrol Systems, "Motor Control", Fall, 1985; CHE 598 Biomechanics, "Economy of running", Spring, 1986; EPE 494 Motor Control in the Elderly, "Gait Characteristics of the Aged", Spring, 1995; ESRI Motor Control Seminar, "Gait Adaptations Symmetrical and Asymmetrical Inertia Manipulation during Walking: Applications in Able-bodied Individuals and Unilateral Below Knee Amputees", Spring, 1996.
- Hinrichs, R.N. and Martin, P.E. Physics and biomechanics of golf. Invited presentation on live national educational cable television. Educational Management Group, Scottsdale, AZ, November 16, 1994.
- Martin, P.E. The Benefits of Exercise for the Chronologically Mature. Presented to the Tempe Chapter of the A.A.R.P., Tempe, March 12, 1993.
- Martin, P.E. Biomechanics Research Applications in Archery. Presented to participants in the Level III/IV Archery Certification Program of the National Archery Association. Colorado Springs, CO, July 10, 1985; Tempe, AZ December 29, 1986; Tempe, AZ, June 12, 1987;

- Harrisonburg, Virginia, October 28, 1988; Austin, TX, January 27, 1989; Pomfret, CN, June 19, 1989; Los Angeles, CA, December 9, 1989; Colorado Springs, CO, May 14-15, 1990; East Lansing, MI, September 27, 1990; Tempe, AZ, June 21, 1991; Colorado Springs, CO, September 28-29, 1993.
- Cavanagh, P.R., Robinson, J.R., Andriacchi, T., Frederick, E., Gossage, D., Gross, T., Martin, P., McClay, I., Valiant, G., and Williams, K. Stress Fractures in NBA Players: Why Do They Occur? (An Interim Report). NBA Annual Meeting. California, September 18, 1987.
- Martin, P.E. Stability Factors in Archery Performance. 3<sup>rd</sup> International Archery Seminar. Antwerp, Belgium, November 11, 1987.
- Martin, P.E. Electromyography Research in Archery. 3<sup>rd</sup> International Archery Seminar. Antwerp, Belgium, November 11, 1987.
- Martin, P.E. The Application of Biomechanics to Middle Distance Running. Elite U.S. Middle Distance Runners Development Camp. Tempe, Arizona, December 10, 1983.
- Martin, P.E. Biomechanics of Load Carrying Behavior. Summary report U.S. Army Natick Research and Development Laboratories. Natick, Massachusetts, July 29, 1982.
- Martin, P.E. Time Interval Analysis of Cross-Country Skiing-Results of the Men's 15 Km and Women's 5 Km Races of the Pre-Olympic Games. Presented to the U.S. National and Development Cross-Country Ski Teams. Lake Placid, New York, May 15, 1979; Grand Targhee, Wyoming, May 25, 1979.
- Martin, P.E. Biomechanics of the Diagonal Stride on Uphills. Presented to the U.S. Ski Team Development Cross-Country Team. Grand Targhee, Wyoming, May 25, 1979.
- Martin, P.E. Biomechanical Analysis of Cross-Country Skiing Techniques. 1979 Cross-Country Ski Coaches Clinic. Minneapolis, Minnesota, November 18, 1979.

## Service and Other Professional Activities

### Editorial Board Service

- Member, Advisory Board, Human Movement (Poland), 2004- .
- Associate Editor, Exercise and Sport Mechanics, Journal of Applied Biomechanics, 1997-2005.
- Biomechanics Section Editor for Research Quarterly for Exercise and Sport, June, 1990-1993.
- Member, Editorial Board for Current Issues in Exercise Science, Human Kinetics Publishers, 1989-1995.
- Member, Editorial Board of the International Journal of Sport Biomechanics, 1988-1991.

### Reviewing Activities

#### Journal Reviewing for:

- Biomedical Engineering Online*, 2007- .
- Canadian Journal of Sports Sciences*, 1987- .
- Clinical Biomechanics*, 2006- .
- European Journal of Applied Physiology*, 2001- .
- Human Movement (Poland)*, 2004- .
- Human Movement Sciences*, 2006- .
- International Journal of Sports Medicine*, 2004- .
- Journal of the American Geriatric Society*, 1994- .
- Journal of Applied Biomechanics* (formerly *International Journal of Sport Biomechanics*), 1985- .
- Journal of Applied Physiology*, 1989- .
- Journal of Biomechanical Engineering*, 2006- .
- Journal of Biomechanics*, 1989- .
- Journal of Experimental Biology*, 2006- .
- Journal of Gerontology*, 1995- .
- Journal of Motor Behavior*, 2008- .
- Journal of Sport Psychology*, 1985.
- Journal of Sports Sciences*, 1989- .
- Journal of Sports Science and Medicine*, 2007- .
- Medicine and Science in Sports and Exercise*, 1985- .
- Motor Control*, 2003- .
- Research Quarterly for Exercise and Sport*, 1984- .
- Sports Biomechanics*, 2007- .

#### Abstract reviewing:

- 2003 ACSM annual meeting (Biomechanics area representative)
- 2002 ACSM annual meeting (Biomechanics area representative)
- 2001 ACSM annual meeting (Biomechanics area representative)
- 2000 ACSM annual meeting (Biomechanics area representative)
- 1999 ACSM annual meeting (Biomechanics area representative)
- 1998 ACSM annual meeting (Biomechanics area representative)
- 1997 ACSM annual meeting (Biomechanics area representative)
- 1996 ACSM annual meeting (Biomechanics area representative)
- 1995 ACSM annual meeting (Biomechanics area representative)
- 1994 ACSM annual meeting (biomechanics abstracts)

1993 ACSM annual meeting (biomechanics abstracts)  
 1992 ACSM annual meeting (biomechanics abstracts)  
 1990 ACSM annual meeting (biomechanics/gait analysis abstracts)  
 1990 AAHPERD annual meeting (Research Consortium-biomechanics abstracts)  
 1989 International Society of Biomechanics biannual meeting (member of the Congress Scientific Committee)  
 1989 ACSM annual meeting (biomechanics abstracts)  
 1989 AAHPERD annual meeting (Research Consortium-biomechanics abstracts)  
 1988 ACSM annual meeting (biomechanics abstracts)  
 1987 American Society of Biomechanics annual meeting (member, Program Committee).

### External reviewer - Promotion and Tenure

More than 40 reviews for 24 academic departments or programs since 1994-95.

### Other Reviewing:

Reviewer, external audit of laboratory procedures, NASA Exercise Physiology Laboratory, August 2006.  
 Reviewer, Research proposal - Michael Smith Foundation for Health Research, March 2006.  
 Reviewer, External program evaluation, Department of Movement Sciences, University of Illinois, Chicago, April 20-21, 2005.  
 Member, External program evaluation team, Department of Health and Kinesiology, Purdue University, October 25-26, 2004.  
 Member, External program evaluation team, M.S. in Kinesiology, Department of Human Movement Sciences, University of Wisconsin, Milwaukee, November 10-12, 2003.  
 Member, External program evaluation team, Department of Health and Human Performance, Iowa State University, March 19-20, 2001.  
 Reviewer, Research proposal - Jewish Hospital Foundation, October, 1996.  
 Reviewer, Manuscript, undergraduate biomechanics textbook for Benjamin/Cummings Publishing (selected chapters only), July-December, 1992.  
 Reviewer, Textbook proposal, undergraduate biomechanics textbook for Benjamin/Cummings Publishing, December, 1991.  
 Reviewer, Research proposals - British Columbia Health Care Research Foundation, November, 1989; November, 1990; April, 1992.  
 Reviewer, Manuscript, *Dictionary of the Sport Sciences* (Biomechanics section), Human Kinetics, July, 1989.  
 Reviewer, Textbook revision proposal, *The Biomechanics of Sports Techniques* (J.G. Hay), Prentice-Hall, October, 1988.  
 Reviewer, Manuscript, introductory undergraduate exercise and sport science textbook for Lea & Febiger, April, 1988.  
 Reviewer, Textbook proposal, undergraduate biomechanics textbook for Prentice-Hall, January, 1987.  
 Reviewer, Manuscript, undergraduate biomechanics textbook for Times Mirror Mosby Publishing Company, November, 1986; January, 1989; December, 1989.  
 Reviewer, Textbook proposal, undergraduate biomechanics textbook for Times Mirror Mosby College Publishing, July, 1985.

## Graduate Thesis and Dissertation Committees

### Committee Chair – Doctoral students

Smith, J.D. Effects of prosthesis inertia on the mechanics and energetics of amputee locomotion. Ph.D., Kinesiology, Penn State University, 2008.  
 Umberger, B.R. Effects of cycle rate on mechanics and energetics of human locomotion. Ph.D., Exercise Science, Arizona State University, 2003.  
 Kao, J.C. (Co-mentor with Shannon D. Robertson). Biomechanical and physiological indicators of the walk-to-run and run-to-walk transitions. Ph.D., Exercise Science, Arizona State University, 2001.  
 Royer, T.D. Lower extremity inertial manipulations produce predictable responses in gait mechanics and energetics. Ph.D., Exercise Science, Arizona State University, 1999.  
 Marsh, A.P. Determinants of preferred cycling cadence: aerobic demand, ratings of perceived exertion and joint moments. Ph.D., Exercise Science, Arizona State University, 1995.  
 Rothstein, D.E. (Co-mentor with Cedric X. Bryant). The interrelationships among physical activity status, musculoskeletal variables, and gait in the elderly. Ph.D., Exercise Science, Arizona State University, 1992.  
 Hreljac, A.P. The determinants of the gait transition during human locomotion. Ph.D., Exercise Science, Arizona State University, 1992.  
 Mungiole, M. (Co-mentor with Jack M. Winters, Dept. of Chemical, Bio, and Materials Engineering). Factors influencing the mechanical output of the ankle plantarflexor muscles during concentric action, with and without prior stretching. Ph.D., Exercise Science, Arizona State University, 1991.  
 Siler, W.L. Changes in running pattern during a treadmill run to volitional exhaustion. Ph.D., Exercise Science, Arizona State University, 1989.

### Committee Chair – Masters students

Peterson, D.S. Effects of age and speed on coactivation, variability, and joint kinetics during walking. M.S., Kinesiology, Penn State University, 2008.  
 Van Werkhoven, H. Comparison of circular and lever pedaling: a modeling approach. M.S., Kinesiology, Penn State University, 2008.  
 Crawley, J.D. (Co-mentor with Richard N. Hinrichs). An evaluation of the nature and reliability of bilateral asymmetry in seated cycling. M.S., Exercise Science and Physical Education, Arizona State University, 2005.  
 Hunter, R.D. Gender differences in muscle recruitment patterns during landing. M.S., Exercise Science and Physical Education, Arizona State University, 2002.

- Mattes, S.J. Manipulations of the inertial characteristics of below-knee prostheses: Effects on symmetry and energy expenditure of walking. M.S., Exercise Science and Physical Education, Arizona State University, 1997.
- Seidler, R.D. The effects of balance training on the postural control of older adults. M.S., Exercise Science and Physical Education, Arizona State University, 1995.
- Joganich, T.G. Influence of in-shoe orthotics on lower extremity function in cycling. M.S., Exercise Science and Physical Education, Arizona State University, 1991.
- Heise, G.D. Interrelationships among mechanical power, energy transfers, and running economy. M.S., Exercise Science and Physical Education, Arizona State University, 1989.

### **Committee Member** - 31 masters thesis committees and 19 dissertation committees

#### **Committee Service—Department**

##### *Iowa State University*

- Member (ex officio), Kinesiology Awards Committee, 2008- .  
Chair, Kinesiology Executive Committee, 2008- .

##### *Penn State University*

- Chair, Curriculum Committee, 2007-08.  
Member (ex officio), Kinesiology Diversity Committee, 2004-07.  
Member (ex officio), UP Advisory Committee, 2002-07.  
Member (ex officio), Kinesiology Commonwealth Advisory Committee, 2002-07.

##### *Arizona State University*

- Member, Executive Committee, Exercise Science Ph.D. Program, 1985-98.  
ESPE faculty and staff search committees:  
Member, Four ESPE faculty positions, 1985-1986.  
Chair, Biomechanics faculty position, 1986-1987.  
Member, ESPE Department Chair, 1987-1988.  
Member, Lecturer position, 1988.  
Member, Exercise physiology faculty position, 1989-1990.  
Member, ESRI Computer Application Specialist, 1990.  
Member, ESPE Department Chair, 1993-1994.  
Member, Sport and Exercise Psychology faculty position, 1994-1995 .  
Member, ESRI Senior Support Systems Analyst, 1995.  
Member, ESPE Secretary, 1995.  
Member, ESRI Biochemistry Technician, 1996.  
Member, Exercise Physiology faculty position, 1996.  
Chair, Biomechanics faculty position, 1996-1997.  
Member, Computer Programmer Senior, 1997-98.  
Member, Motor Behavior faculty position, 1998-99.  
Member, Planning committee for the Gatorade Symposium on Future Directions in Exercise/Sport Research, Tempe, Arizona (January 9-12, 1986), 1985-1986.  
ESPE Department liaison to the University Microcomputer Infusion Program, 1986-1989.  
Member, ESPE Undergraduate Curriculum Committee, 1986-1988.  
Member, Ad hoc committee responsible for preparing a self-study report on the Exercise Science Ph.D. degree program (Arizona State University Graduate Council review), 1986-1988.  
Member, Ad hoc ESPE Department committee responsible for preparing a Department self- study report (ASU dicennial review process), 1988.  
Ad hoc committee responsible for revising ESPE Department Bylaws, 1988.  
Member, ESPE Executive Committee (advisory to the Chair), 1989-1993.  
Chair, ad hoc ESPE Department committee to study renovation of Physical Education Building East, 1989.  
Member, ESPE Affirmative Action and Grievance Committee, 1989-1991.  
ESPE Personnel Committee  
Chair, 1994-95, 1997-98.  
Member, 1991-92, 1995-96, 1996-97.  
Chair, ad hoc ESPE Facilities Team, 1994-5.  
Chair, ESPE Promotion and Tenure Committee, 1994-95.  
Member, Ad hoc ESPE Department committee responsible for preparing a Department self- study report (ASU dicennial review process), 1997-98.  
Chair, Ad hoc Committee of the Interdisciplinary Ph.D. in Exercise Science to review program policies and procedures, 1998-99.

#### **Committee Service--College/University**

##### *Iowa State University*

Member, ISU Institutional Review Board, Office of Responsible Research, August 2009- .  
Member, Search Committee for Director of the Nutrition and Wellness Research Center, Summer 2009 - .  
Member, Ad hoc Committee on Summer Compensation, College of Human Sciences, Spring, 2009 - .  
Member, Budget Advisory Committee, College of Human Sciences, 2008- .  
Member (substitute), Technology Advisory Committee, College of Human Sciences, Fall 2008.

### *Penn State University*

Alternate member, Institutional Review Board, Office of Research Protections, Penn State University, 2007-08.  
Member, Promotion and Tenure Committee, College of Health and Human Development, 2007-08.  
Member, Curriculum Committee, College of Health and Human Performance, Fall 2007.  
Chair, Advisory Committee, General Clinical Research Center, Sep 2004-07.  
Member, Board of Visitors, Center for Sports Journalism, College of Communications, January 2004-June 2008.  
Member, Ad Hoc Immediate Tenure Committee, College of Health and Human Development, January-July, 2003.  
Member, Faculty Steering Committee, The Huck Institute for Life Sciences, 2003-04.  
Member, Administrative (AD-14) Review Committee, Department of Biobehavioral Health, College of Health and Human Development, Nov 2002-Mar 2003.  
Member, Search Committee, Director of the Noll Research Center, Oct 2002-04.  
Member, Advisory Committee, General Clinical Research Center, Nov 2002-Aug 2004.

### *Arizona State University*

Member, ASU Health Advisory Committee, 2000-02.  
Member, Planning Committee for the President's Club Scholarship Golf Tournament, 1998-01.  
Section Leader, LIA 191: Discovery Tour (First Year Seminar), Spring, 1996, Fall, 1996.  
Member, CLAS Standards Committee, 1995-96.  
Member, Search Committee for Director of ASU Undergraduate Academic Services, June-August, 1995.  
Member, Interdisciplinary Committee on Adaptive Neural Systems, ASU, 1993-95.  
Member, Health Care Consortium, an ad hoc University committee studying opportunities for developing health care educational programs at Williams Air Force Base, AZ, 1992-1993.  
University Faculty Senate (Substitute ESPE Senator) Spring, 1986.

## **Committee Service--Professional/Community**

Chair, Relationships/Liaison and Membership Committee, American Kinesiology Association, 2009- .  
Member, Borelli Award Committee, American Society of Biomechanics, May, 2009.  
Member, Board of Directors, American Kinesiology Association, 2009- .  
Member, Journal of Biomechanics Award Committee, American Society of Biomechanics, 2008.  
Member, Hay Memorial Award Committee, American Society of Biomechanics, 2007.  
Secretary/Treasurer, American Academy of Kinesiology and Physical Education, 2006-08.  
Member, Membership Committee, American Academy of Kinesiology and Physical Education, 2003-06.  
Member, Organizing Committee, Progress in Motor Control V: a multidisciplinary perspective, 2004-05.  
Member, Committee on Accreditation of Programs, American Academy of Kinesiology and Physical Education, 2004-05.  
Chair, Membership Committee, American Academy of Kinesiology and Physical Education, 2000-01.  
Member, Nominating Committee, American Society of Biomechanics, 1999-2000.  
ACSM Liaison to the American Society of Biomechanics, 1998-99.  
Chair, Research Review Committee, American Society of Biomechanics, 1996-99.  
Chair, Awards Committee, American Society of Biomechanics, 1995-96.  
Chair, Nominating Committee, American Society of Biomechanics, 1995-96.  
Member, Budget and Finance Committee, American Society of Biomechanics, 1996-1997.  
Co-chair, Biomechanics Special Interest Group, American College of Sports Medicine, 1994-1997.  
Member, Awards Committee, American Society of Biomechanics, 1993.  
Member, Research Review Committee, American College of Sports Medicine, 1991-1994.  
Member, Biomechanics planning subcommittee for the U.S. Information Agency exhibit on sport and sport science at the 1988 World Expo in Brisbane, Australia.  
Member, Scientific Advisory Committee, U.S. Olympic Committee Sports Medicine Council, 1986-1988.  
Research Section Chair, Board of Directors of the Arizona Association for Health, Physical Education, Recreation, and Dance, 1986-1989.  
Member, Technical Advisory Board, RECAP (Research for Coaching and Performance), 1985-1987.  
Member, Sports Medicine Committee, U.S. Archery Team, 1985-1988.  
Member, Nominating Committee, Kinesiology Academy, AAHPERD, 1985; 1988.