

CURRICULUM VITA

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Education

Oberlin College	A.B. 1971	Physical Education
Kansas State Teachers College	M.S. 1972	Physical Education (<i>Motor Learning</i>)
Teachers College, Columbia University	Ed.D. 1975	Physical Education (<i>Motor Learning & Biomechanics</i>)

Employment

1975-82	Assistant Professor, Physical and Health Education, The University of Texas at Austin
1982- 2003	Associate Professor, Kinesiology and Health Education, The University of Texas at Austin
2003- present	Professor, Kinesiology and Health Education, The University of Texas at Austin
1980-81	Research Associate, Laboratory of Neural Control, NINCDS, The National Institutes of Health, Bethesda, MD
1987-88	Visiting Adjunct Associate Professor, Department of Exercise Science, University of Massachusetts
1998- 2002	Associate Dean for Teacher Education and Student Affairs, College of Education, The University of Texas at Austin
2000-2008	Chair, Department of Curriculum and Instruction The University of Texas at Austin
2009-2012 2013-present	Associate Dean, School of Undergraduate Studies, The University of Texas at Austin
2012-2013	Interim Dean, School of Undergraduate Studies, The University of Texas at Austin

Professional Memberships

American College of Sports Medicine; International Society of Biomechanics; International Society of Biomechanics in Sports; International Society of Electrophysiological Kinesiology; National Association of Kinesiology in Higher Education; North American Society for the Psychology of Sport and Physical Activity; Phi Delta Kappa; SHAPE America (Research Council Fellow); Society for Neuroscience; Texas Association for Health, Physical Education, Recreation, and Dance.

Research and Professional Interests

Biomechanical analysis of human movement in sport and rehabilitation.
Neuromuscular aspects of motor coordination.
Computer-assisted modeling of neuromuscular control systems.
Utilization of instructional technology in teaching and learning.

Refereed Articles

1. Potegal, M., Abraham, L., Gilman, S., & Copack, P. A technique for vestibular neurotomy in the rat. Physiology and Behavior, 1975, 14, 217-221.
2. Abraham, L., Copack, P.B., & Gilman, S. Brainstem pathways for vestibular projections to cerebral cortex. Experimental Neurology, 1977, 55, 436-448.
3. Potegal, M., Day, M.J., & Abraham, L. Maze orientation, visual and vestibular cues in two-maze spontaneous alternation of rats. Physiological Psychology, 1977, 5, 414-420.
4. Blum, P.S., Abraham, L., & Gilman, S. Vestibular, auditory, and somatic input to the posterior thalamus of the cat. Experimental Brain Research, 1979, 34, 1-9.
5. Wolf, M.D., Wilcox, R.E., Riffée, W.H., & Abraham, L.D. Strain differences in dopamine receptor function and the initiation of movement. Pharmacology, Biochemistry, & Behavior, 1980, 13, 5-7.
6. Spirduso, W.W., Abraham, L.D., & Wolf, M.D. Effects of chlorpromazine on escape and avoidance responses: A closer look. Pharmacology, Biochemistry, & Behavior, 1981, 14, 433-38.
7. Farrar, R.P., Martin, T.P., Abraham, L.D., & Erickson, C.K. The interaction of endurance running and ethanol on skeletal muscle mitochondria. Life Sciences, 1982, 30, 67-75.
8. Miller, S., Potegal, M., & Abraham, L. Vestibular involvement in a passive transport and return task. Physiological Psychology, 1983, 11, 1-10.
9. Abraham, L., Potegal, M., & Miller, S. Evidence for caudate nucleus involvement in an egocentric spatial task: Return from passive transport. Physiological Psychology, 1983, 11, 11-17.
10. Brown, J.G., Abraham, L.D., & Bertin, J.J. Descriptive analysis of the rip entry in competitive diving. Research Quarterly for Exercise and Sport, 1984, 55, 93-102.
11. Abraham, L.D. & Loeb, G.E. The distal hindlimb musculature of the cat. Patterns of normal use. Experimental Brain Research, 1985, 58, 580-593.
12. Abraham, L.D., Marks, W.B., & Loeb, G.E. The distal hindlimb musculature of the cat. Cutaneous reflexes during locomotion. Experimental Brain Research, 1985, 58, 594-603.
13. Etnyre, B.R. & Abraham, L.D. H-Reflex changes during static stretching and two variations of PNF techniques. Electroencephalography and Clinical Neurophysiology, 1986, 63, 174-179.
14. Etnyre, B.R. & Abraham, L.D. Gains in range of ankle dorsiflexion using three popular stretching techniques. American Journal of Physical Medicine, 1986, 65, 189-196.
15. Layne, C. & Abraham, L.D. Patterns of lower limb muscle activity during a one-foot static balance task. Research Quarterly for Exercise and Sport, 1987, 58, 36-40.
16. Etnyre, B.R. & Abraham, L.D. Antagonist muscle activity during stretching: A paradox revisited. Medicine and Science in Sports and Exercise, 1988, 20, 285-289.
17. Etnyre, B.R., Kinugasa, T., & Abraham, L.D. Post-contraction variations in motor pool excitability. Electromyography and Clinical Neurophysiology, 1990, 30, 259-264.
18. Coyle, E., Feltner, M., Kautz, S., Hamilton, M., Montain, S, Baylor, A., Abraham, L., Petrek, G.. Physiological and biomechanical determinants of elite cycling endurance performance. Medicine and Science in Sports and Exercise, 1991, 23, 93-107.
19. Barr, R.E. & Abraham, L.D. Computer-aided instructional sequence for biomechanics of human movement. International Journal of Applied Engineering Education, 1991, 7, 221-230.
20. Layne, C. & Abraham, L. Interactions between automatic postural adjustments and anticipatory postural patterns accompanying voluntary movement. International Journal of Neuroscience, 1991, 61, 241-254.
21. Allison, S.C. & Abraham, L.D. M-wave stability in H-reflex testing: Analysis of three rejection criteria. Electromyography and Clinical Neurophysiology, 1994, 35, 165-168.
22. Allison, S.C. & Abraham, L.D. Correlation of quantitative measures with the modified Ashworth scale in the assessment of plantar flexor spasticity in patients with traumatic brain injury. Journal of Neurology, 1995, 242, 699-706.

23. Gonzalez, R.V., Hutchins, E.L., Barr, R.E. & Abraham, L.D. Development and evaluation of a musculoskeletal model of the elbow joint complex. Journal of Biomechanical Engineering, 1996, 118, 32-40.
24. Allison, S.C., Abraham, L.D. & Petersen, C.L. Reliability of the Modified Ashworth Scale in the assessment of plantarflexor muscle spasticity in patients with traumatic brain injury. International Journal of Rehabilitation Research, 1996, 19, 67-78.
25. Gonzalez, R.V., Abraham, L.D., Barr, R.E. & Buchanan, T.S. Muscle coordination in one and two degree-of-freedom ballistic movements about the human elbow joint complex. Biological Cybernetics, 1999, 80, 357-367.
26. Ives, J.C., Abraham, L. & Kroll, W. Neuromuscular control mechanisms and strategy in arm movements of supranormal speed. Research Quarterly for Exercise and Sport, 1999, 70, 335-348.
27. Hwang, I.S., Abraham, L.D. & Chou, S.W. The effect of ankle joint position and effort on quadriceps reflex sensitivity. Clinical Neurophysiology, Section: EMG and Motor Control, 2000, 111, 1175-1183.
28. Hwang, I.S. & Abraham, L.D. Quantitative EMG analysis to investigate synergic coactivation of ankle and knee muscles during isokinetic ankle movement. Part I: Time amplitude analysis. Journal of Electromyography & Kinesiology, 2001, 11, 319-325.
29. Hwang, I.S. & Abraham, L.D. Quantitative EMG analysis to investigate synergic coactivation of ankle and knee muscles during isokinetic ankle movement. Part II: Time frequency analysis. Journal of Electromyography & Kinesiology, 2001, 11, 327-335.
30. Allison, S.C. & Abraham, L.D. Sensitivity of qualitative and quantitative spasticity measures to clinical treatment with cryotherapy. International Journal of Rehabilitation Research, 2002 24, 15-24.
31. Teyhen, D.S., Flynn, T.W., Bovik, A.C., & Abraham, L.D. A new technique for digital fluoroscopic video assessment of sagittal plane lumbar spine motion. Spine, 2005, 30, E406-E413.
32. Annaswamy, T., Mallempati, S., Allison, S.C. & Abraham, L. Measurement of plantarflexor spasticity in Traumatic Brain Injury: Correlational study of resistance torque compared with the Modified Ashworth Scale. American Journal of Physical Medicine and Rehabilitation, 2007, 86, 404-11.
33. Teyhen, D.S., Flynn, T.W., Childs, J.D., Kuklo, T.R., Rosner, M.K., Polly, D.W. & Abraham, L.D. Fluoroscopic video to identify aberrant lumbar motion. Spine, 2007, 32(7): E220-229.
34. Teyhen, D.S., Flynn, T.W., Childs, J.D. & Abraham, L.D. Arthrokinematics in a sub-group of patients likely to benefit from a lumbar stabilization program. Physical Therapy, 2007, 87: 313-325.
35. Decker, M. J., Griffin, L., Brandt, L., and Abraham, L. Effects of stimulation pattern on FES-cycling performance and mechanomyographic responses in persons with paralysis from spinal cord injury. Journal of Electromyography and Kinesiology, 2010, 20(6):1163-69.
36. Herring, T., Eakin, T., Abraham, L., and Spirduso, W. Maximum voluntary isometric contraction and force-matching from the fourth to the eighth decades of life. International Journal of Rehabilitation Research, 2014, 37(2): 159-166.
37. Walkington, C., Arora, P., Ihorn, S., Walker, M. Abraham, L., & Marder, M. Designing a classroom observation instrument to evaluate mathematics and science teachers from the UTeach preparation program. *The Teacher Educator*, (submitted).

Refereed Conference Proceedings

1. Abraham, L. Neuronal basis for vestibulo-proprioceptive interactions in motor control. Psychology of Motor Behavior and Sport, vol. I, (D. Landers & R. Christina, eds.) Champaign: Human Kinetics, 1977, 191-201.
2. Abraham, L. An inexpensive technique for digitizing spatial coordinates from videotape. Biomechanics X-B. Human Kinetics, 1987, 1107-10.
3. Abraham, L. & Cook, M. Skill-related differences in early postural components in ballet. Biomechanics X-A. Human Kinetics, 1987, 451-54.
4. Gonzalez, R.V., Micallef, D.M., Barr, R.E. & Abraham, L.D. Prediction of muscle force patterns in elbow flexion/extension using mathematical modeling and electromyography. Proceedings of the 10th Southern Biomedical Engineering Conference, 1991.
5. Abraham, L.D. & Barr, R.E. Design of microcomputer instructional modules for biomechanics. Teaching Kinesiology and Biomechanics in Sports. AAHPERD, 1991, 67-72.
6. Alciatore, D.G., Abraham, L.D. & Barr, R.E. Matrix solution of digitized planar human body dynamics for biomechanics laboratory instruction. Proceedings of the 12th Annual ASME International Computers in Engineering Conference, 1992.
7. Gonzalez, R., Andritsos, M., Barr, R.E. & Abraham, L. Comparison of experimental and predicted muscle activation patterns in ballistic elbow joint movements. Proceedings of the 30th Annual Rocky Mountain Bioengineering Symposium, 1993.
8. Abraham, L. & Kalakanis, D. Synchronization of video kinematic and analog biomechanical data using the Motion Analysis System. Biomechanics in Sports XI. Univ. of Massachusetts, 1993, 257-261.
9. Gonzalez, R.V., Barr, R.E., & Abraham, L.D. A musculoskeletal model of the elbow joint complex. Proceedings of the 1994 ASME Winter Annual Meeting, 1994.
10. Gonzalez, R.V., Abraham, L.D., Barr, R.E. & Buchanan, T.S. Muscle coordination in elbow joint complex movements. Proceedings of the American Society of Biomechanics, 1995.

Professional Articles

1. Abraham, L. Sports biomechanics: Application of high tech to Olympic engineering. Texas Professional Engineer, July-August, 1984, 16-19.
2. Barr, R.E. & Abraham, L.D. The punter's profile: A biomechanical study. Soma, 1987, 1, 4-12.
3. Abraham, L.D. & Barr, R.E. Microcomputer instructional modules for human biomechanics. Hardcopy, 1992, 4, 6-8.
4. Abraham, L. Using virtual instruments to teach neuromuscular laboratory techniques. National Instruments In Academia, 1996, 3-24.
5. Abraham, L.D. & Hwang, I.-S. Joint time frequency analysis of electromyographic signals for investigation of neuromuscular coordination. In M.L. Chugani, A.R. Samant, & M. Cerna (eds) LabVIEW for Signal Processing. New York: Prentice Hall, 1998, pp. 325-338.

Published Abstracts

1. Abraham, L., Blum, P., & Gilman, S. Multi-modal responses of cells in the medial geniculate body of the cat. Neuroscience Abstracts, 1975, 1, 220.
2. Abraham, L. & Potegal, M. Caudate nucleus involvement in spatial orientation. Society for Neuroscience Abstracts, 1979, 5, 67.
3. Spirduso, W.W., Abraham, L.D., & Wolf, M.D. Effects of chlorpromazine on escape and avoidance responses: A closer look. Society for Neuroscience Abstracts, 1979, 5, 663.

4. Brown, J.G. & Abraham, L.D. Kinematic characteristics of the rip entry in diving. Biomechanics, 1980.
5. Brown, J.G. & Abraham, L.D. Characteristics of entries in competitive diving. American Society of Biomechanics Abstracts, 1981, V, 65.
6. Abraham, L.D., Loeb, G.E., & Marks, W.B. Comparison of normal use and reflex response patterns of cat distal hindlimb muscles. Society for Neuroscience Abstracts, 1981, 7,
7. Miller, S., Potegal, M., & Abraham, L. Vestibular involvement in spatial orientation. Society for Neuroscience Abstracts, 1981, 7, .
8. Abraham, L., Kinugasa, T., Baylor, A.M., Blankenship, J.C., & Robertson, D. Changes in electromyographic patterns during acquisition of a fine motor skill. Society for Neuroscience Abstracts, 1983, 9, 633.
9. Baylor, A.M., Kinugasa, T., Abraham, L.D. & Blankenship, J.C. Changes in single motor unit activity during acquisition of a fine motor skill. Society for Neuroscience Abstracts, 1983, 9, 633.
10. Boda, W. & Abraham, L. The relationship between arm motion at entry and rip entries in diving. American Society of Biomechanics Abstracts, 1984, VIII, 3.
11. Stegall, J.H. & Abraham, L.D. Effects of arm action on the height attained in a maximal vertical jump. American Society of Biomechanics Abstracts, 1984, VIII, 91.
12. Schryver, J.E., Barr, R.E., Abraham, L.D., Jones, D.D., Evans, R.M., & Schaffer, J.E. Filter-spline-filter smoothing of sport biomechanics data. Proceedings of the thirty-eighth annual Conference on Engineering in Medicine and Biology, 1985.
13. Etnyre, B. & Abraham, L.D. Comparison of wire and surface electrode recordings between an antagonist pair of muscles. 6th Congress of International Society of Electrophysiological Kinesiology, 1985, 85-87.
14. Layne, C.S., Abraham, L.D., & Brunt, D. EMG patterns in response to postural perturbations and their interactions with voluntary movement in deaf subjects. Society for Neuroscience Abstracts, 1985, 11, 702.
15. Layne, C.S. & Abraham, L.D. Interactions between reflexive and voluntary postural activity. Society for Neuroscience Abstracts, 1986, 12, 1300.
16. Cook, M. & Abraham, L.D. Skill-related differences in neuromuscular and kinematic postural adjustments during a ballet skill (grand battement devant). Society for Neuroscience Abstracts, 1986, 12, 1301.
17. Abraham, L. & Benjuya, N. Learning-related differences in human SMU recruitment during position tracing. Society for Neuroscience Abstracts, 1986, 12, 1425.
18. Benjuya, N. & Abraham, L.D. Learning-related differences in human SMU recruitment during isometric tracing. Society for Neuroscience Abstracts, 1986, 12, 1425.
19. Barr, R.E., Abraham, L.D., Evans, R.M., Jones, D.D., & Schryver, J.E. Biomechanical analysis of football punting. IEEE Transactions on Biomedical Engineering, 1986.
20. Barr, R.E., Abraham, L.D., Cawood, M.D., & Ziegler, J.M. Microcomputer laboratory for teaching and research in sports biomechanics. Biomedical Engineering VI. Recent Developments, 1987.
21. Barr, R.E., Greene, D.E., Abraham, L.D., Hamlin, R.D., Erickson, R.L., & Cleland, T.P. Human electrophysiological dynamics in manual control tracking. Biomedical Engineering VI. Recent Developments, 1987.
22. Layne, C.S. & Abraham, L.D. Variations in human postural activity preparatory to well-practiced rapid arm movement. Society for Neuroscience Abstracts, 1987, 13, 714.
23. Barr, R.E., Hamlin, R.D., Abraham, L.D. & Greene, D.E. Electromyographic evaluation of operator performance in manual control tracking. IEEE Transactions on Biomedical Engineering November 1988.
24. Lombrozo, P., Barr, R.E. & Abraham, L.D. Smoothing of noisy human motion data using digital filtering and spline curves. IEEE Transactions on Biomedical Engineering, November 1988.
25. Lambert, N.J., Kroll, W.P. & Abraham, L.D. Tendon tap reflex responses as influenced by movement impairment. Society for Neuroscience Abstracts, 1988, 14, 1304.

26. Barr, R.E. & Abraham, L.D. Computer-aided instruction and learning in sports biomechanics. Second International Symposium on Computer Simulation in Biomechanics, 1989, 1-2.
27. Abraham, L., Kroll, W. & Ives, J. Control of rapid movement onset under conditions of varying resistance. Journal of Biomechanics, 1989, 22, 979.
28. Abraham, L., Coyle, E., Kautz, S. & Feltner, M. High-power output pedaling of elite cyclists: Physiological and biomechanical characteristics. First World Congress of Biomechanics Abstracts, 1990, II, 120.
29. Fregly, B.J., Kautz, S.A., Zajac, F.E. & Abraham, L. Steady state pedaling of elite cyclists: Neuromuscular control strategies based on comparison of experimental and simulation results. First World Congress of Biomechanics Abstracts, 1990, II, 121.
30. Wood, S.M., Barr, R.E., Abraham, L.D. & Gonzalez, R.V. Computer graphics modeling of the musculoskeletal system of the human arm. IEEE Transactions on Biomedical Engineering, November 1990.
31. Abraham, L., Childs, A., Dodd, M., Harris, D. & Race, C. Clinical report on treatment following traumatic head injury with patterned electrical stimulation. Third IBRO World Congress of Neuroscience Abstracts, 1991, 83.
32. Allison, S.C. & Abraham, L.D. Effects of ankle position on M- and H-wave amplitudes in human soleus Hoffman reflex testing. Society for Neuroscience Abstracts, 1992, 18, 1402.
33. Abraham, L.D., Kalakanis, D. & Baylor, A.M. Effects of movement initiation conditions on postural and task EMG activity during initiation of rapid shoulder flexion. Society for Neuroscience Abstracts, 1992, 18, 1554.
34. Abraham, L.D., Allison, S.C., Anderla, P.A. & Stanford, C. Use of a servo motor device to quantify spastic plantarflexor muscle characteristics. Society for Neuroscience Abstracts, 1993, 19, 991.
35. Abraham, L.D. & Allison, S.C. Correlation of quantitative measures with the modified Ashworth scale in the assessment of plantarflexor spasticity in patients with traumatic brain injury. Society for Neuroscience Abstracts, 1994, 20, 338.
36. Allison, S.C. & Abraham, L.D. Sensitivity of qualitative and quantitative spasticity measures to the clinical treatment of spasticity with cryotherapy. Society for Neuroscience Abstracts, 1994, 20, 338.
37. Allison, S.C., Abraham, L.D. & Stanford, C. Feasibility of using analysis of variance to validate M-wave stability for H-reflex testing. Society for Neuroscience Abstracts, 1995, 21, 680.
38. Abraham, L., Childs, N., McWilliams, H., Chitre, R., Chou, S.-W., Gobert, D., & Waddell, D. Assessment of changes in ankle plantarflexor spasticity following intramuscular Botox injections. Society for Neuroscience Abstracts, 1996, 22, 1899.
39. Annaswamy, T.A., Allison, S.C. & Abraham, L.D. Correlation of the Modified Ashworth Scale with the resistance torque in the assessment of plantarflexor spasticity. Archives of Physical Medicine and Rehabilitation, 1997, 78, 1033.
40. Waddell, D. & Abraham, L.D. Practice-related changes in rapid movement initiation in traumatic brain injury patients. Society for Neuroscience Abstracts, 1998, 24.
41. Chou, S.W., Abraham, L.D., Hwang, I.S. & Chitre, R. Distinction between tonic and phasic stretch reflexes in the spastic soleus muscle. Society for Neuroscience Abstracts, 1998, 24.
42. Gobert, D. & Abraham, L. A multivariate analysis of frontal postural sway: Postural coordination as modified by sensory condition and aging. Society for Neuroscience Abstracts, 2000, 26.
43. Doucet, B.M., Griffin, L., Abraham, L.D., & Cafarelli, E. Difficulty during release phase of force-accuracy tasks: After-peak reverberation. Society of Neuroscience Abstracts, 2004, 30.
44. Decker, M.J., Griffin, L. & Abraham, L. Synergistic alternating muscle activation patterns during moderate intensity sustained isometric contractions. Society of Neuroscience Abstracts, 2007, 33.

Book Reviews

1. Singer, R.N. and Milne, C. Laboratory and field experiments in motor learning. Thomas, 1975. In American Corrective Therapy Journal, 1976, 30, 150.
2. Holding, D.H. (ed) Human skills. Wiley, 1981. In Choice, November 1981.
3. Schmidt, R.A. Motor control and learning: a behavioral emphasis. Human Kinetics, 1982. In Choice, September 1982.
4. Kelso, J.A.S. & Clark, J.E. (eds) The development of movement control and coordination. Wiley, 1982. In Choice, November 1982.
5. Kelso, J.A.S. (ed) Human motor behavior: an introduction. Lawrence Erlbaum, 1982. In Choice, March 1983.
6. Kleinman, M. The acquisition of motor skill. Princeton Book Co., 1983. In Choice, July/August 1983.
7. McMahon, T.A. Muscles, reflexes, and locomotion. Princeton, 1984. In Choice, September 1984.
8. Enoka, R. Neuromechanical basis of kinesiology. Human Kinetics, 1988. In Sports Medicine Bulletin, 1989, 24.
9. Enoka, R. Neuromechanical basis of kinesiology. (2nd ed.) Human Kinetics, 1994. In Medicine and Science in Sport and Exercise, 1995.

Research Presentations at Scholarly Meetings

1. Cookrish, N. & Abraham, L. The locus of response latency. The fifth annual meeting of the Canadian Psycho-Motor Learning and Performance Symposium, 1973.
2. Abraham, L., Potegal, M., & Manning, S. Evidence concerning a vestibular contribution to spontaneous alternation in rats: A progress report. The fourth annual meeting of The Society for Neuroscience, 1974.
3. Abraham, L., Blum, P., & Gilman, S. Multi-modal responses of cells in the medial geniculate body of the cat. The fifth annual meeting of The Society for Neuroscience, 1975.
4. Abraham, L. Neuronal basis for vestibulo-proprioceptive interactions in motor control. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, 1976.
5. Abraham, L. Mechanisms of motor control. The annual meeting of the Southern District of the American Alliance for Health, Physical Education, and Recreation, 1977.
6. Abraham, L. Multi-dimensional analysis of short-term motor memory in simple arm positioning. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, 1977.
7. Abraham, L. & Wolf, M.D. Interactions between reflex and voluntary motor responses to kinesthetic stimuli. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, 1978.
8. Abraham, L. Basal ganglia, but not hippocampus, mediate vestibular influence on spatially oriented behavior. The International Congress in Physical Education, 1979.
9. Abraham, L.D., Wolf, M.D., & Spirduso, W.W. Effects of chlorpromazine on movement initiation in rats; Part III: Cinematographic analysis. The International Congress in Physical Education, 1979.
10. Spirduso, W.W., Abraham, L.D., & Wolf, M.D. Effects of chlorpromazine on escape and avoidance responses: A closer look. The ninth annual meeting of the Society for Neuroscience, 1979.
11. Abraham, L. & Potegal, M. Caudate nucleus involvement in spatial orientation. The ninth annual meeting of the Society for Neuroscience, 1979.
12. Brown, J.G. & Abraham, L.D. Kinematic characteristics of the rip entry in diving. The second Big Ten CIC Physical Education Body of Knowledge Biomechanics Symposium, 1980.

13. Miller, S., Potegal, M., & Abraham, L. Vestibular involvement in spatial orientation. The annual meeting of the Eastern Psychological Association, 1981.
14. Brown, J.G. & Abraham, L.D. Characteristics of entries in competitive diving. The fifth annual meeting of the American Society of Biomechanics, 1981.
15. Abraham, L.D., Loeb, G.E., & Marks, W.B. Comparison of normal use and reflex response patterns of cat distal hindlimb muscles. The eleventh annual meeting of the Society for Neuroscience, 1981.
16. Miller, S., Potegal, M., & Abraham, L. Vestibular involvement in spatial orientation. The eleventh annual meeting of the Society for Neuroscience, 1981.
17. Etnyre, B.R., Kinugasa, T., & Abraham, L.D. Post contraction inhibition following maximum isometric contraction of the soleus in man. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, 1983.
18. Etnyre, B. & Abraham, L. Effects of three stretching techniques on the motor pool excitability of the human soleus muscle. The annual meeting of the American Alliance of Health, Physical Education, Recreation, & Dance, 1983.
19. Kinugasa, T., Blankenship, J.C., & Abraham, L. Variations in muscle patterns of a karate strike. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, 1983.
20. Abraham, L., Kinugasa, T., Baylor, A.M., Blankenship, J.C., & Robertson, D. Changes in electromyographic patterns during acquisition of a fine motor skill. The thirteenth annual meeting of the Society for Neuroscience, 1983.
21. Baylor, A.M., Kinugasa, T., Abraham, L.D. & Blankenship, J.C. Changes in single motor unit activity during acquisition of a fine motor skill. The thirteenth annual meeting of the Society for Neuroscience, 1983.
22. Layne, C.S. & Abraham, L. EMG patterns of lower limb muscles during a one-foot static balance task. The Olympic Scientific Congress, 1984.
23. Boda, W. & Abraham, L. The relationship between arm motion at entry and rip entries in diving. The eighth annual meeting of the American Society of Biomechanics, 1984.
24. Stegall, J.H. & Abraham, L.D. Effects of arm action on the height attained in a maximal vertical jump. The eighth annual meeting of the American Society of Biomechanics, 1984.
25. Benjuya, N. & Abraham, L. Changes in recruitment of single motor units during acquisition of an isometric skill. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, 1985.
26. Abraham, L. An inexpensive technique for digitizing spatial coordinates from videotape. The tenth International Congress of Biomechanics, 1985.
27. Abraham, L. & Cook, M. Skill-related differences in early postural components in ballet. The tenth International Congress of Biomechanics, 1985.
28. Schryver, J.E., Barr, R.E., Abraham, L.D., Jones, D.D., Evans, R.M., & Schaffer, J.E. Filter-spline-filter smoothing of sport biomechanics data. The thirty-eighth annual Conference on Engineering in Medicine and Biology, 1985.
29. Layne, C.S., Abraham, L.D., & Brunt, D. EMG patterns in response to postural perturbations and their interactions with voluntary movement in deaf subjects. The fifteenth annual meeting of the Society for Neuroscience, 1985.
30. Benjuya, N. & Abraham, L.D. Changes in recruitment of single motor units during acquisition of a dynamic tracing task. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, 1986.
31. Abraham, L. & Benjuya, N. Learning-related differences in human SMU recruitment during position tracing. The sixteenth annual meeting of the Society for Neuroscience, 1986.
32. Benjuya, N. & Abraham, L.D. Learning-related differences in human SMU recruitment during isometric tracing. The sixteenth annual meeting of the Society for Neuroscience, 1986.
33. Cook, M. & Abraham, L.D. Skill-related differences in neuromuscular and kinematic postural adjustments during a ballet skill (grand battement devant). The sixteenth annual meeting of the Society for Neuroscience, 1986.

34. Layne, C.S. & Abraham, L.D. Interactions between reflexive and voluntary postural activity. The sixteenth annual meeting of the Society for Neuroscience, 1986.
35. Barr, R.E., Abraham, L.D., Evans, R.M., Jones, D.D., & Schryver, J.E. Biomechanical analysis of football punting. The IEEE/Engineering in Medicine and Biology Society 8th Conf., 1986.
36. Barr, R.E., Abraham, L.D., Cawood, M.D., & Ziegler, J.M. Microcomputer laboratory for teaching and research in sports biomechanics. The sixth Southern Biomedical Engineering Conference, October 1987.
37. Barr, R.E., Greene, D.E., Abraham, L.D., Hamlin, R.D., Erickson, R.L., & Cleland, T.P. Human electrophysiological dynamics in manual control tracking. The sixth Southern Biomedical Engineering Conference, October 1987.
38. Layne, C.S. & Abraham, L.D. Variations in human postural activity preparatory to well-practiced rapid arm movement. The seventeenth annual meeting of the Society for Neuroscience, 1987.
39. Etnyre, B.R. & Abraham, L.D. Intra- and inter-muscular analysis of EMG signals from wire and surface electrodes using cross-correlation and spectrum analysis techniques. The annual meeting of the International Society of Electrophysiological Kinesiology, 1988.
40. Barr, R.E., Hamlin, R.D., Abraham, L.D. & Greene, D.E. Electromyographic evaluation of operator performance in manual control tracking. The tenth annual meeting of the IEEE/Engineering in Medicine and Biology Society, November 1988.
41. Lombrozo, P., Barr, R.E. & Abraham, L.D. Smoothing of noisy human motion data using digital filtering and spline curves. The tenth annual meeting of the IEEE/Engineering in Medicine and Biology Society, November 1988.
42. Lambert, N.J., Kroll, W.P. & Abraham, L.D. Tendon tap reflex responses as influenced by movement impairment. The eighteenth annual meeting of the Society for Neuroscience, November 1988.
43. Barr, R.E. & Abraham, L.D. Computer-aided instruction and learning in sports biomechanics. The second International Symposium on Computer Simulation in Biomechanics, June 1989.
44. Abraham, L., Kroll, W. & Ives, J. Control of rapid movement onset under conditions of varying resistance. The twelfth Congress of the International Society of Biomechanics, June 1989.
45. Abraham, L., Ives, J., Kroll, W. & Bultman, L. Effects of varying load and resistance on control of rapid elbow flexion. The annual meeting of the North American Society for the Psychology of Sport and Physical Activity, May 1990.
46. Abraham, L., Coyle, E., Kautz, S. & Feltner, M. High-power output pedaling of elite cyclists: Physiological and biomechanical characteristics. The First World Congress of Biomechanics, August 1990.
47. Fregly, B.J., Kautz, S.A., Zajac, F.E. & Abraham, L. Steady state pedaling of elite cyclists: Neuromuscular control strategies based on comparison of experimental and simulation results. The First World Congress of Biomechanics, August 1990.
48. Wood, S.M., Barr, R.E., Abraham, L.D. & Gonzalez, R.V. Computer graphics modeling of the musculoskeletal system of the human arm. The annual IEEE Biomedical Engineering Conference, November 1990.
49. Abraham, L.D. & Barr, R.E. Design of microcomputer instructional modules for biomechanics. Third National Symposium on Teaching Kinesiology and Biomechanics in Sports, July 1991.
50. Abraham, L.D. & Barr, R.E. Microcomputer instructional modules for biomechanics. Third National Symposium on Teaching Kinesiology and Biomechanics in Sports, July 1991.
51. Abraham, L., Childs, A., Dodd, M., Harris, D. & Race, C. Clinical report on treatment following traumatic head injury with patterned electrical stimulation. The Third IBRO World Congress of Neuroscience, August 1991.
52. Gonzalez, R.V., Micallef, D.M., Barr, R.E. & Abraham, L.D. Prediction of muscle force patterns in elbow flexion/extension using mathematical modeling and

- electromyography. The tenth Southern Biomedical Engineering Conference, October 1991.
53. Alciatore, D.G., Abraham, L.D. & Barr, R.E. Matrix solution of digitized planar human body dynamics for biomechanics laboratory instruction. The twelfth annual ASME International Computers in Engineering Conference, August 1992.
 54. Abraham, L.D., Kalakanis, D. & Baylor, A.M. Effects of movement initiation conditions on postural and task EMG activity during initiation of rapid shoulder flexion. The twenty-second annual meeting of the Society for Neuroscience, October 1992.
 55. Allison, S.C. & Abraham, L.D. Effects of ankle position on M- and H-wave amplitudes in human soleus Hoffman reflex testing. The twenty -second annual meeting of the Society for Neuroscience, October 1992.
 56. Gonzalez, R.V., Andritsos, M.J., Barr, R.E. & Abraham, L.D. Comparison of experimental and predicted muscle activation patterns in ballistic elbow flexion joint moments. The Rocky Mountain Biomedical Engineering Conference, April 1993.
 57. Abraham, L. and Kalakanis, D. Synchronization of video kinematic and analog biomechanical data using the Motion Analysis System. The annual conference of the International Society for the Biomechanics of Sport, June 1993.
 58. Abraham, L.D., Allison, S.C., Anderla, P.A. & Stanford, C. Use of a servo motor device to quantify spastic plantarflexor muscle characteristics. The twenty-third annual meeting of the Society for Neuroscience, November 1993.
 59. Abraham, L.D. Microcomputer instructional modules for teaching biomechanics. The annual meeting of the National Association of Physical Education in Higher Education, January 1994.
 60. Reiser, R.F. II & Abraham, L.D. Development of geometric and muscle-specific parameters for musculoskeletal modeling of the shoulder joint. The annual meeting of the Texas Regional Chapter of the American College of Sports Medicine, February 1994.
 61. Gonzalez, R.V., Barr, R.E., & Abraham, L.D. A musculoskeletal model of the elbow joint complex. The winter annual meeting of the American Society of Mechanical Engineering, November 1994.
 62. Abraham, L.D. & Allison, S.C. Correlation of quantitative measures with the modified Ashworth scale in the assessment of plantarflexor spasticity in patients with traumatic brain injury. The twenty-fourth annual meeting of the Society for Neuroscience, November 1994.
 63. Allison, S.C. & Abraham, L.D. Sensitivity of qualitative and quantitative spasticity measures to the clinical treatment of spasticity with cryotherapy. The twenty-fourth annual meeting of the Society for Neuroscience, November 1994.
 64. Gonzalez, R.V., Abraham, L.D., Barr, R.E. & Buchanan, T.S. Muscle coordination in elbow joint complex movements. The nineteenth annual meeting of the American Society of Biomechanics, August 1995.
 65. Allison, S.C., Abraham, L.D. & Stanford, C. Feasibility of using analysis of variance to validate M-wave stability for H-reflex testing. The twenty-fifth annual meeting of the Society for Neuroscience, November 1995.
 66. Kalakanis, D. & Abraham, L. Countermovement can contribute to optimal motor coordination of a model without elastic muscle properties. An international conference, "Bernstein's Traditions in Motor Control", August 1996.
 67. Abraham, L., Childs, N., McWilliams, H., Chitre, R., Chou, S.-W., Gobert, D., & Waddell, D. Assessment of changes in ankle plantarflexor spasticity following intramuscular Botox injections. The twenty-sixth annual meeting of the Society for Neuroscience, November 1996.
 68. Helenberger, D.M., Sanders, M.T. & Abraham, L.D. Temporal analysis of the javelin throw. The annual meeting of the International Society of Biomechanics in Sport, June 1997.
 69. Kalakanis, D., Layne, C.S., Abraham, L.D. & Bloomberg, J.J. Influence of external forces on the control and performance of a minimum time shoulder flexion task. The annual meeting of the International Society of Biomechanics in Sport, June 1997.
 70. Annaswamy, T.A., Allison, S.C. & Abraham, L.D. Correlation of the Modified Ashworth Scale with the resistance torque in the assessment of plantarflexor spasticity. The

- annual meeting of the American Academy of Physical Medicine and Rehabilitation, November 1997.
71. Waddell, D. & Abraham, L.D. Practice-related changes in rapid movement initiation in traumatic brain injury patients. The twenty-eighth annual meeting of the Society for Neuroscience, November 1998.
 72. Chou, S.W., Abraham, L.D., Hwang, I.S. & Chitre, R. Distinction between tonic and phasic stretch reflexes in the spastic soleus muscle. The twenty-eighth annual meeting of the Society for Neuroscience, November 1998.
 73. Chou, S.W., Abraham, L.D. & Hwang, I.S. Clinical implication of the absolute reflex threshold angle of the stretch reflex in spastic soleus muscle. The annual meeting of the American College of Rehabilitation Medicine, November 1998.
 74. Gobert, D. & Abraham, L. A multivariate analysis of frontal postural sway: Postural coordination as modified by sensory condition and aging. The thirtieth annual meeting of the Society for Neuroscience, November 2000.
 75. Resta, P., Abraham, L., Bryant, D. & Tothoro, K. Establishing a ubiquitous computing environment for teacher preparation students and faculty: The University of Texas at Austin Laptop Initiative. The annual meeting of the Association of Teacher Educators, February 2004.
 76. Resta, P., Abraham, L., Gerwels, M.C. & Tothoro, M. Establishing a ubiquitous computing environment for teacher preparation students and faculty: The University of Texas at Austin Laptop Initiative. The fifteenth annual meeting of the Society for Information Technology and Teacher Education, March 2004.
 77. Teyhen, D.S., Abraham, L.D. & Flynn, T.W. Digital fluoroscopic assessment of sagittal plane lumbar spine flexion. The annual meeting of the American Society of Biomechanics, September 2004.
 78. Doucet, B.M., Griffin, L., Abraham, L.D., & Cafarelli, E. Difficulty during release phase of force-accuracy tasks: After-peak reverberation. The thirtieth annual meeting of the Society for Neuroscience, November 2004.
 79. Teyhen, D.S., Flynn, T.W., Childs, J.D., & Abraham, L.D. Lumbar spine kinematics among patients likely to benefit from a lumbar stabilization exercise program. The annual combined sections meeting of the American Physical Therapy Association, February 2005.
 80. Teyhen, D.S., Flynn, T.W., Childs, J.D., Kuklo, T.R., Rosner, M.K., Polly, D.W., & Abraham, L.D. Kinematic movement patterns of lumbar spine segmental instability: An initial step in the development of a clinical prediction rule. The annual meeting of the International Society for the Study of the Lumbar Spine, May 2005.
 81. Teyhen, D.S., Flynn, T.W., Childs, J.D., Kuklo, T.R., Rosner, M.K., Polly, D.W., & Abraham, L.D. Description of lumbar spine kinematics: A novel approach using digital fluoroscopic video. The annual meeting of the International Society for the Study of the Lumbar Spine, May 2005.
 82. Teyhen, D.S., Flynn, T.W., Bovik, A.C., & Abraham, L.D. A New Technique for Digital Fluoroscopic Video Assessment of Sagittal Plane Lumbar Spine Motion. The annual meeting of the International Society for the Study of the Lumbar Spine, May 2005.
 83. Decker, M., Griffin, L., & Abraham, L. Force fluctuations and alternating muscle activation patterns of synergistic muscles during a sustained sub-maximal contraction. The annual meeting of the American College of Sports Medicine, June 2005.
 84. Teyhen, D., Flynn, T., Childs, J., Kuklo, T., Rosner, M., Polly, D., & Abraham, L. Identifying kinematic movement patterns in patients with lumbar segmental instability. The annual meeting of the North American Spine Society, September 2005.
 84. Teyhen, D., Flynn, T., Childs, J., Kuklo, T., Rosner, M., Polly, D., & Abraham, L. Lumbar spine kinematics a novel approach using digital fluoroscopic video. The annual meeting of the North American Spine Society, September 2005.
 85. Teyhen et al Digital Fluoroscopic Video to Identify Segmental Dysfunction in Patients with Lumbar Spine Instability. The annual meeting of the International Society for the Study of the Lumbar Spine, May 2006.

86. Abraham, L. Virtual quantitative application for teaching biomechanical analysis. The annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance, March 2007.
87. Decker, M.J., Griffin, L., & Abraham, L. Synergistic alternating muscle activation patterns during moderate intensity sustained isometric contractions. The annual meeting of the Society for Neuroscience, November 2007.
88. Abraham, L., Stover, C., & Overdorf, V. Controlling a system to enhance skill acquisition. The annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance, March 2008.
89. Arora, P., DiBiano, C., Dickinson, G., Walker, M., Abraham, L., & Marder, M. A preliminary examination of Noyce Scholars as teachers. The annual Robert Noyce Scholarship PI Conference, National Science Foundation, June 2008.
90. Russell, P., Satern, M., & Abraham, L. Biomechanics past and future contributions. The annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance, March 2009.
91. Abraham, L. Innovative approaches to teaching biomechanical concepts. The annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance, March 2010.

Invited Presentations

1. Abraham, L. Biomechanical analysis of running style. Capitol 10,000 Running Clinic, February, 1980.
2. Abraham, L. Neurokinesiological analysis of normal cat locomotion. The fourth annual Teachers College Conference on Motor Control, March 1981.
3. Abraham, L. Current techniques and research in neurokinesiology. Keynote address at the annual meeting of the Maryland Kinesiological Society, May 1981.
4. Abraham, L. An analysis of coordination: the basis for improving movement. Department of Physical Education, Oberlin College, October 1981.
5. Abraham, L. Biomechanical analysis for running efficiency: the BARE facts. Travis County Podiatry Society and Austin YMCA, March 1982.
6. Abraham, L. The goals of motor control. The Winter Conference on Brain Research, 1982.
7. Brown, J.G. & Abraham, L.D. The role of whip in rip entries. The annual Sport Sciences Symposium of the U.S. Diving Association, September 1983.
8. Abraham, L.D. Skill-related differences in human neuromuscular activity. Major presentation at a conference titled "Neurobehavioral Analysis of Motor Skill Learning", Teachers College, Columbia University, November 1987.
9. Abraham, L. Neuromuscular mechanisms controlling rapid movement onset. School of Physical Education, Recreation, and Dance, Kent State University, April 1990.
10. Abraham, L. Effects of load and initial resistance on rapid movement initiation. Department of Physical Education & Leisure Studies, Kansas State University, September 1990.
11. Abraham, L. Issues and trends for the future of physical education. Dept. of Physical Education, Health, and Sport Studies, Miami University, March 1991.
12. Abraham, L.D. & Allison, S.C. Movement analysis research. Healthcare Rehabilitation Center, Austin, TX, October 1991.
13. Abraham, L. Studying elite athletic performance. February Lecture Series, Department of Kinesiology and Health Education, The University of Texas at Austin, February 1992.
14. Abraham, L.D. Paradoxes in analysis of movement. Austin Area Physical Therapy Association, Austin, TX, April 1992.
15. Abraham, L.D. Neuromuscular mechanisms controlling rapid movement onset. Department of Kinesiology, Texas A & M University, March 1994.
16. Abraham, L.D. & Allison, S. In search of objective spasticity measures. Major presentation at a regional workshop titled "Traumatic Brain Injury: Limitations to

- Skilled Movement", sponsored by the Department of Physical Therapy, University of Florida, April 1994.
17. Abraham, L.D. Applications of exercise science in physical education and sport. Department of Exercise and Leisure Studies, Rice University, April 1994.
 18. Abraham, L. Using musculoskeletal models to study neuromotor control. Department of Kinesiology, University of Houston, October 1994.
 19. Abraham, L. The once and future biomechanist. TAHPERD Scholar Lecture, the seventy first annual convention of The Texas Association for Health, Physical Education, Recreation, and Dance, December 1994.
 20. Abraham, L. Quantification of muscle spasticity in traumatic brain injury patients. Neuroscience Research Group, University of Otago, Dunedin, New Zealand, June 1995.
 21. Abraham, L. Biomechanical models and issues in motor control. Motor Control Interest Group, University of Otago, Dunedin, New Zealand, June, 1995.
 22. Abraham, L. Magic and science in human movement analysis. Presented at a conference titled "Understanding Movement: Culture, Science, Practice", sponsored by the School of Physical Education, University of Otago, Dunedin, New Zealand, June 1995.
 23. Abraham, L. Multidimensional analysis of human movement. Presented to the Rehabilitation Medicine staff at Chang Gung Memorial Hospital, Taipei, Taiwan, December 1995.
 24. Abraham, L. Applications of biomechanics in medicine, sport, and engineering. Presented to the medical staff at Chang Gung Memorial Hospital, Taipei, Taiwan, December 1995.
 25. Abraham, L. Quantification of muscle spasticity. Presented at the annual meeting of the Rehabilitation Medicine Association, Taiwan, Republic of China, December 1995.
 26. Abraham, L. Multidimensional analysis of human movement. Biomedical Engineering Society, The University of Texas at Austin, April 1996.
 27. Abraham, L. Mechanisms and treatment of muscle spasticity following traumatic brain injury. Presented at the Second Annual UT Symposium on Neuroscience, March 1997.
 28. Abraham, L. Rehabilitation bioengineering. A private forum titled "Building Biomedical Engineering Partnerships" sponsored by The University of Texas at Austin, Austin TX, May 1997.
 29. Abraham, L. & Bustard, A. The Texas teacher education laptop initiative. The annual meeting of the American Association of Colleges of Teacher Education, New Orleans, January 2003.
 30. Abraham, L. Models and Methods of Research in Education. Third Annual Innovations in Health Science Education Conference, University of Texas System, Austin, October 2006.
 31. Smith, C., Abraham, L., Nicholls, G.C., Troncoso, R., Troncoso, C, & Mechler, R. Using core stabilization to enhance running performance. AT&T Austin Marathon Expo 2007 Education Series, February 2007.
 32. Smith, C., Abraham, L., Summers, D., Kunkel, B., Garel, M. & Robb, R. Using biomechanical analysis to study and improve running form. AT&T Austin Marathon Expo 2007 Education Series, February 2007.
 33. Abraham, L. Addition of intertrial variability to Gentile's taxonomy of motor skills. Symposium: Ann Gentile: An Appreciation of Her Contributions To Science, Education, and Practice. Teachers College, Columbia University, May 2008.
 34. The UTeach story: Transforming secondary math and science teacher preparation locally and nationally. Teacher Preparation Initiative, St. Cloud State University, St. Cloud MN, June 2010.

Research Grants, Contracts, and Other Awards

1977-78	University Research Institute, BRSG Research Grant <i>Vestibular cues for spatially-oriented behavior.</i>	\$	4,454.00
1978-79	University of Texas at Austin, Vice-President for Academic Affairs,	\$	1,487.00

Improvement of Undergraduate Teaching Award <i>Development of physical education experiential packets (PEEPs).</i> (with T. McKenzie & D. Lambdin)		
1979-80	University Research Institute, BRSG Research Grant <i>Rostral vestibular projections in the rat.</i>	\$ 5,196.00
1979-80	Intercollegiate Athletics for Women, U.T., Research Contract <i>Biomechanical analysis of sport.</i>	\$ 5,000.00
1980-81	National Institutes of Health, NINCDS, Laboratory of Neural Control <i>Neurokinesiological analysis of cat locomotion.</i> (Intergovernmental Personnel Act)	\$ 25,000.00
1981	University Research Institute Special Research Grant <i>Expert-novice cognitive processing differences in recognition memory or movement information.</i> (with L.D. Housner)	\$ 500.00
1982	University Research Institute, BRSG Research Grant <i>Multi-dimensional analysis of fine motor skill acquisition.</i> (with A.M.Baylor)	\$ 5,200.00
1983-86	Intercollegiate Athletics for Men, U.T. Intercollegiate Athletics for Women, U.T., Research Contract <i>Biomechanical analysis of sport.</i> (with R. Barr)	\$ 29,306.00
1985-87	Project Quest, UT Austin and IBM, Instructional Award <i>Biomechanical analysis of human movement.</i> (with R. Barr)	\$ 95,000.00
1986	University Research Institute, BRSG Research Grant <i>Three-dimensional dynamic model of human movement.</i>	\$ 5,229.00
1986-87	Intercollegiate Athletics for Women, U.T., Research Contract <i>Biomechanical analysis of sport.</i> (with R. Barr)	\$ 6,000.00
1987-88	University Research Institute, Faculty Research Assignment <i>Computer-assisted analysis of electromyographic data.</i>	\$ 20,125.00
1989-93	Healthcare Rehabilitation Center, Research Gift <i>Biomechanical analysis of movement.</i>	\$ 29,200.00
1991-92	Healthcare Rehabilitation Center, Research Grant <i>Quantification of spasticity</i>	\$ 22,850.00
1992-93	NASA - Johnson Space Center, Regional University Grant Program <i>Musculoskeletal modeling of the human upper extremity.</i> (with R. Barr & M. Pandy)	\$ 72,075.00
1992-93	Healthcare Rehabilitation Center, Research Grant <i>Quantification of muscle spasticity</i>	\$ 33,490.00
1993	Various Donors, Research Grant <i>Descriptive analysis of novice diving entries from a six-inch deck.</i> (with K. Tyson)	\$ 2,500.00
1993-94	NASA - Johnson Space Center, Regional University Grant Program <i>Musculoskeletal modeling of the human upper extremity.</i>	\$ 64,876.00

(with M. Pandy & R. Barr)

1994	Healthcare Rehabilitation Center, Research Gift <i>Evaluation of movement disorders following traumatic head injury.</i>	\$ 22,000.00
1994	KRUG Life Sciences, Inc., Research Contract <i>Analysis of EMG data in the treadmill locomotion and head and gaze fixation project.</i>	\$ 6,453.00
1994	Project Quest, UTAustin, Instructional Award <i>Using virtual instruments to teach neuromuscular laboratory techniques.</i>	\$ 5,000.00
1995	Healthcare Rehabilitation Center, Research Gift <i>Evaluation of movement disorders following traumatic head injury.</i>	\$ 16,000.00
1995-96	KRUG Life Sciences, Inc., Research Contract <i>Development of a dynamic model for investigating postural control during arm movement.</i>	\$ 20,005.00
1995-97	NASA - Johnson Space Center, Regional University Grant Program <i>Neuromechanical postural control synergies supporting voluntary movement.</i>	\$ 38,662.00
1995-97	NASA - Johnson Space Center, Regional University Grant Program <i>Musculoskeletal modeling of human upper extremity performance.</i> (with R. Barr & M. Pandy)	\$ 59,385.00
1997-98	Healthcare Rehabilitation Center, Research Gift <i>Evaluation of movement disorders following traumatic head injury.</i>	\$ 12,000.00
2007-10	National Science Foundation <i>Robert Noyce UTeach Scholarships.</i>	\$400,000.00
2010-12	Texas Higher Education Coordinating Board <i>Developmental Education Demonstration Project</i>	\$400,000.00

Teaching and Instructional Activities

Courses Developed

Undergraduate Courses

- KIN 320 Biomechanical Analysis of Human Movement
- KIN 326K Kinesiology: Biomechanical Analysis of Movement
- KIN 219S Analysis of Individual Activities
- KIN 219D Analysis of Dual Activities
- KIN 219T Analysis of Team Activities
- KIN 352K Applied Exercise Science (contains substantial writing component)

Graduate Courses

- PED 382 Relay Circuits for Motor Control
- PED 382 Biomechanical Analysis of Movement
- PED 382 Neuromuscular Laboratory Techniques
- KIN 382 Motor Control Laboratory Techniques
- KIN 382 Biomechanics Laboratory Techniques
- PED 395 Sensorimotor Function of the Nervous System
- PED 395 Neuropsychological Bases of Motor Performance
- KIN 395 Biomechanics of Sport
- KIN 395 Neural Control of Posture and Locomotion
- KIN 395 Biomechanics of Human Movement

Courses Taught

Undergraduate courses

- PI 108J Beginning Volleyball
- PED 104H Beginning Racquetball
- KIN 315 Motor Learning
- KIN 219S Movement Analysis: Individual Sports (team-taught)
- KIN 219D Movement Analysis: Dual Sports (team-taught)
- KIN 320 Biomechanical Analysis of Human Movement
- KIN 326K Kinesiology: Biomechanical Analysis of Movement
- PED 335 Motor Learning and Control (Laboratory)
- KIN 335 Motor Learning
- KIN 352K Applied Exercise Science (contains substantial writing component)
- KIN 379H Honors Tutorial: Neurophysiological Bases of Motor Learning

Graduate courses

- PED 382 Relay Circuits for Motor Control
- PED 382 Biomechanical Analysis of Movement
- PED 382 Neuromuscular Laboratory Techniques
- KIN 382 Motor Control Laboratory Techniques
- KIN 382 Biomechanics Laboratory Techniques
- PED 395 Sensorimotor Function of the Nervous System
- PED 395 Neuropsychological Bases of Motor Performance
- KIN 395 Biomechanics of Sport
- KIN 395 Neural Control of Posture and Locomotion
- KIN 395 Motor Control: Performance and Learning
- KIN 395 Motor Control: Neuromuscular Bases
- KIN 395 Biomechanics of Human Movement
- KIN 395 Biomechanics in Clinical Settings
- NEU 383T Introduction to Neuroscience (campus-wide, team taught)
- BME 397S Biomedical Engineering Seminar

Graduate Student Supervision

Doctoral students supervised

Michael Wolf, Ph.D. (co- with W. Riffée, Pharmacy) <i>Strain differences in nigrostriatal function and the initiation of movement.</i>	Physical Education (Motor Control)	1979
Debra Robertson, Ph.D. <i>Analysis of electromyographic patterns and performance scores of males and females during fine motor skill acquisition.</i>	Physical Education (Motor Control)	1982
Bruce Etnyre, Ph.D. <i>The influence of three stretching techniques on the excitability of the human soleus motor pool and on the range of ankle dorsiflexion.</i>	Physical Education (Motor Control)	1984
Nisim Benjuya, Ph.D. <i>Changes in recruitment of single motor units during acquisition of a static and a dynamic motor skill.</i>	Physical Education (Motor Control)	1986
Arlene Antilla, Ph.D. <i>Preparatory postural adjustments in 5- and 8-year-old boys.</i>	Physical Education (Motor Control)	1986
Charles Layne, Ph.D. <i>Relationships between anticipatory postural and prime mover muscle activity.</i>	Physical Education (Motor Control)	1987
Stephen Allison, Ph.D. <i>Qualitative and quantitative measurement of plantarflexor muscle spasticity in patients with traumatic brain injury: Reliability, prediction and sensitivity to cryotherapy.</i>	Kinesiology (Motor Control)	1994
Roger Gonzalez, Ph.D. (co- with R. Barr, Mechanical Engineering) <i>A computational musculoskeletal model of the human elbow and forearm in the analysis of ballistic movements.</i>	Mechanical Engineering (Biomechanics)	1995
David Carpenter, Ph.D. (co- with R.J. Thornhill, Mechanical Engineering) <i>Effects of altered gravity on jumping performance and intermuscular control.</i>	Kinesiology (Biomechanics)	1995
Dimitrios Kalakanis, Ph.D. <i>Optimal control and dynamics applied to rapid bilateral arm raise.</i>	Kinesiology (Biomechanics)	1997
Shih-Wei Chou, Ph.D. <i>Stretch reflexes in the soleus muscle of normal and spastic subjects: Interactive effects of starting positions and stretching velocities.</i>	Kinesiology (Motor Control)	1998
Dwight Waddell, Ph.D. <i>Quantitative evaluation of movement initiation and skill acquisition in a traumatically brain injured population.</i>	Biomedical Engineering (Neuromuscular Control)	1998
Ing-Shiou Hwang, Ph.D. <i>Quantitative electromyographic analysis of synergy in neuromuscular control.</i>	Biomedical Engineering (Neuromuscular Control)	1998
Rohit Chitre, Ph.D.	Biomedical Engineering (Neuromuscular Control)	2000

Modeling the reflex-mediated mechanical response to muscle stretch in normal subjects and spasticity patients.

Denise Gobert, Ph.D.	Kinesiology (Motor Control)	2000
<i>A multivariate analysis of frontal plane postural sway: Postural coordination as modified by sensory condition and aging.</i>		
Wen-Tzu Tang, Ph.D.	Kinesiology (Biomechanics)	2002
<i>Relationships among arm strength, wrist release, and joint torques during the golf downswing.</i>		
Deydre Teyhen, Ph.D.	Kinesiology (Biomechanics)	2004
<i>Kinematic assessment of lumbar segmental instability using digital fluoroscopic video.</i>		
Trena Herring Marler, Ph.D. (co- with Waneen Spirduso)	Kinesiology (Motor Control and Aging)	2011
<i>Precision pinch isometric force, force variability, accuracy, and task time among the 4th through 8th decades of life.</i>		

Masters students supervised

Susan Kent, M.A.	Physical Education (Motor Integration)	1977
<i>Verification of the effects of structure and strategy on arm positioning accuracy</i>		
Nina Shepardson, M.A.	Physical Education (Adapted Physical Education)	1978
<i>The effects of perceptual-motor enrichment upon the motor performance of a six year old child with cerebella brain damage.</i>		
Charles Layne, M.A.	Physical Education (Adapted Physical Education)	1982
<i>EMG patterns of four lower limb muscles during a one foot static balance task.</i>		
Janet Brown, M.A.	Physical Education (Biomechanics)	1982
<i>Biomechanical analysis of the rip entry in competitive diving.</i>		
Tomaz Ribeiro, M.A.	Physical Education (Motor Control)	1984
<i>Changes in memory usage leading to automatic information processing, due to practice.</i>		
Joel Stegall, M.A.	Physical Education (Biomechanics)	1984
<i>Effects of arm action on the height attained in a maximal vertical jump.</i>		
Melissa Cook, M.A.	Physical Education (Motor Control)	1985
<i>Differences between skill levels in neuromuscular and kinematic postural adjustment patterns during a grande battement devant.</i>		
Mark Engeling, M.Ed.	Physical Education	1985
No thesis, no report.		
Wanda Boda, M.A.	Physical Education (Biomechanics)	1986
<i>Analysis of the rip entry in diving.</i>		
Holly Straight, M.A.	Physical Education (Biomechanics) (report)	1987
<i>The kinematic effects at the knee joint due to running on a mediolateral tilt.</i>		

Derek Parker, M.A. <i>Kinematic assessment of critical features of two common discus training techniques.</i>	Physical Education (Biomechanics) (report)	1987
Tamara Thompson, M.Ed. No thesis, no report.	Kinesiology (Biomechanics)	1989
Carolyn Guyton, M.Ed. No thesis, no report.	Kinesiology (Biomechanics)	1989
Martha Dodd, M.Ed. No thesis, no report.	Kinesiology (Motor Control)	1991
Raoul Reiser, II, M.A. <i>Development of geometric and muscle-specific parameter values for musculoskeletal modeling of the shoulder joint.</i>	Kinesiology (Biomechanics)	1993
Peter Anderla, M.S. <i>EMG/Force relations in the tibialis anterior.</i>	Biomedical Engineering (report)	1993
Dimitrios Kalakanis, M.A. <i>Postural adjustments associated with rapid, bilateral arm movement under self-paced, reaction and coincident initiation conditions.</i>	Kinesiology (Biomechanics)	1994
Susan Bailey, M. Ed. No thesis, no report.	Kinesiology	1994
Kathryn Jump, M.Ed. No thesis, no report.	Kinesiology (Biomechanics)	1994
Alanna Albrecht, M.A. <i>Muscle activation and torque in the lower limbs during rapid, bilateral shoulder flexion.</i>	Kinesiology (Biomechanics)	1994
Rohit Chitre, M.S. <i>Comparison of EMG processing techniques for correlation with joint torque.</i>	Biomedical Engineering	1994
Thomas Duke, M.A. <i>Anti-G straining maneuver foot pressures during centrifuge trials.</i>	Kinesiology (Biomechanics)	1994
Mandyam Thirunarayan, M.A. <i>Correlation of the Modified Ashworth Scale with the resistance torque obtained through analyses of the torque data in the assessment of plantarflexor spasticity in patients with traumatic brain injury.</i>	Kinesiology (Motor Control)	1994
Charyn O'Brien, M.A. <i>Hand skills, reaction time, and short term memory changes related to EEG biofeedback therapy in children with attention deficit disorder: A case study.</i>	Kinesiology (Motor Control)	1996
Derek Helenberger, M.S. <i>Temporal analysis of the javelin throw.</i>	Biomedical Engineering	1996
Denise Gobert, M.Ed. No thesis, no report.	Kinesiology (Motor Control)	1997
Robert Vincent, M.S. (Co- with R. Barr, Mechanical Engineering) <i>Biomechanical analysis of changes in neuromuscular control strategy during extended practice of a rapid elbow flexion movement.</i>	Mechanical Engineering	1997

Wen-tzu Tang, M.Ed. No thesis, no report.	Kinesiology (Biomechanics)	1998
Laura Morf, M.Ed. No thesis, no report.	Kinesiology (Motor Control)	1999
Daniel Britt, M.A. <i>Biomechanical analysis of factors affecting clubhead speed at impact in a golf swing.</i>	Kinesiology (Biomechanics)	2002
Mary Pflum, M.A. (co- with M. Pandey, Biomedical Engineering) <i>Anterior cruciate ligament forces during dynamic activity.</i>	Kinesiology (Biomechanics)	2002
Tejas Karande, M.S. (co- with R. Barr, Mechanical Engineering) <i>Virtual biomechanics laboratory.</i>	Biomedical Engineering	2002
Chul-Ho Yu, M.Ed. No thesis, no report.	Kinesiology (Biomechanics)	2005
Michelle Brown, M.A. (co- with J. Luft, Science Education) <i>The creation and implementation of a Nature of Science rubric: Seeking factors that influence beginning teachers' understandings of the nature of science</i>	Science Education	2006
Christopher Sanders, M.A. <i>Engaging students in the study of the kinematics of projectile motion using the UT BioMech website.</i>	Science Education	2007
Landon Hamilton, M.A. <i>Analysis of Force Production and Muscle Activation in a Manual Tracking Task.</i>	Kinesiology (Motor Control and Aging)	2010
Nicole Kristen Bohnsack, M.S. <i>Body dynamics and Muscle Activity during Chi running.</i>	Kinesiology (Biomechanics)	2010
Christopher Wilson, M.S. <i>Effect of visual feedback on learning of a 2:1 isometric bimanual coordination pattern.</i>	Kinesiology (Motor Control and Aging)	2012
Sangsoo Park, M.S. <i>Effects of varying the force levels and direction of force change on accuracy and force variability in a cyclic isometric pinch force tracking task</i>	Kinesiology (Biomechanics)	2012

Academic Program Development

Undergraduate

Curricular revision in Physical Education major to accommodate PL 94-142
 Chaired committee for creation of Bachelor of Science in Kinesiology Degree Program, including major programs in kinesiology and health promotion & fitness
 Steering Committee member, UTeach program for reformed secondary math and science teacher certification
 Directed revision of University teacher certification programs to align with new state standards and levels, 2000-2002
 Oversaw the creation of TIES (Teacher Induction Education and Support) program for University teacher education program completers as they enter the teaching profession.
 Led the design and implementation of a laptop computer requirement for teacher certification students (LIFE – Laptop Initiative for Future Educators).
 Served on a blue ribbon Task Force on Curriculum Reform for the University undergraduate core curriculum, 2005-06.

Graduate

Concentrations in motor control and biomechanics for masters and doctoral students in kinesiology
 Concentration in biomechanics for masters and doctoral students in biomedical engineering
 Cross-disciplinary graduate program in neuroscience
 Concentration in movement science for masters and doctoral students in kinesiology.
 Masters degree program in health science education for UTMB faculty (in progress).

Other Evidence of Teaching Excellence

2006 recipient of the University-wide Innovative Instructional Technology Awards Program Gold Award for Teaching with Technology.
 Doctoral student (Deydre Teyhen) received the Outstanding Dissertation Award in 2005.
 Nominated by students for Friar Society Teaching Excellence Award, 1988, 1997.
 Nominated by the College of Education for charter membership in the Academy of Distinguished Teachers, 1995, 1996.
 1993-94 recipient of the William David Blunk Memorial Professorship, awarded annually for outstanding teaching and dedication to undergraduate students.
 Doctoral student (Roger Gonzalez) received honorable mention for a research paper presented at the 10th Southern Biomedical Engineering Conference, October 1991.
 Selected by the Center for Teaching Effectiveness for participation in two studies on classroom interaction and professor-student communication.
 Three masters students have been selected competitively for research internships in biomechanics at the U.S. Olympic Training Center.
 Former graduate students hold or have held the following positions:
 Research Assistant, Human Biomechanics Laboratory, Georgia Tech
 Research Scientist: Prosthetics Research Laboratory (Roxbury VA Center), Mechanical Engineering (Stanford University), Rehabilitation (Northwestern University), Occupational Therapy (SUNY Buffalo), Health & Performance Sciences (Georgia Tech)
 Director, Motor Behavior Laboratory, Krug LSI at Johnson Space Center, NASA
 Director of Research and Education, U.S. Diving
 Tenured or tenure-track faculty: New York University, Northeastern University, Northwestern University, Sonoma State University, Fort Sam Houston, U.S. Army/Baylor Univ., University of Kansas, LeTourneau University, Kaye College, Israel, Tulane University, Universidade Federal Fluminense, Niterio, Brazil, University of Houston, Rice University, Texas State University

Professional and Public Service Activity

Biomechanics consultant:

Intercollegiate Athletics for Women, UT Austin, 1979-92

Intercollegiate Athletics for Men, UT Austin, 1983-86

U.S. Modern Pentathlon Association, 1986-87

U.S. Diving, 1988-present

Performance Advisory Team, Intercollegiate Athletics for Women, 1986-present

Johnson Space Center, NASA, 1992-1997

Elite Training Group, Austin, TX, 1993-present

Member of the Editorial Board of Completed Research in HPERD, 1979-82

Member of the Editorial Board of Kinesiology Reviews, Journal of Physical Education, Recreation, and Dance, 1982-1984

Member of the Editorial Board of Quest, 1986-92

Member of the Editorial Review Board for the U.S. Diving Safety Manual, 1989-90

Research Associate, Healthcare Rehabilitation Center, 1990-2000

Organized research session on elite cycling at the First World Congress of Biomechanics, 1990

Textbook reviewer for publishers: Burgess, Mayfield, Mosby

AAHPERD Research Consortium Credentials Committee 1990-92

Science and Engineering Fair Judge, Austin Area, 1991-92; State, 1992

Blanton Elementary School "Invent America" Judge, 1989-96

Reviewer of grant applications for:

National Science Foundation, United States Olympic Committee, United States Diving,

Veterans Administration Intramural Research Program, Women's Sports Foundation -

Oshman's Grants for Girls' Sports Program

Manuscript reviewer for the following journals:

Experimental Neurology, International Journal of Sport Biomechanics, International

Journal of Sport Medicine, Journal of Applied Biomechanics, Journal of Gerontology,

Journal of Motor Behavior, Journal of Physiology, Medicine and Science in Sports and

Exercise, Neuroscience, Psychology, Quest

Abstract reviewer for annual meetings of the following organizations:

American Alliance for Health, Physical Education, Recreation, and Dance, American College

of Sports Medicine, North American Society for the Psychology of Sport and Physical

Activity, Southern District of AAHPERD Research Council, National Association for Physical

Education in Higher Education

Hosted tours and lectured to classes from Southwest Texas State University, Department of

Allied Health Sciences and San Antonio College, Department of Physical Education.

Organized a sport biomechanics exhibit at the Texas Science and Technology Festival, 1987

and at Bowie High School Science Night, 1991

Organized symposium on use of instructional technology in higher education for the annual

meeting of the National Association of Physical Education in Higher Education, 1994

Compiled and maintained the Texas Biomechanics Resource Directory, 1986-1990

Coordinated a feature multimedia presentation on exercise science for the AISD

Science/Technology Career Fair, 1992

Developed a collaborative link between AISD Science Academy at LBJ High School and the UT

Exercise Science Program, 1993-95

Austin ISD Budget Advisory Committee, 1996, 1997, 2000

Founding Member, Austin ISD Teaching Pathway Steering Committee, 2000-2002

Austin ISD Partners in Education Board of Directors, 2001-2004

Strategic planning consultant for Apple Computer Corporation, 2004-2008

Special Honors and Awards

- 1978 Elected to Fellow Status in the Research Consortium of the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD)
- 1980-81 Research Associate, Laboratory of Neural Control, National Institutes of Health
- 1987-88 Visiting Adjunct Associate Professor of Exercise Science, U. of Massachusetts
- 1993-94 William David Blunk Memorial Professorship, The University of Texas (Awarded annually for outstanding teaching and dedication to undergraduate students.)
- 1994 Selected as the TAHPERD Scholar by the College Division of the Texas Association for Health, Physical Education, Recreation, and Dance
- 1994 Selected as a recipient (with Dorothy D. Lambdin, EdD) of the Oak Tree Award by the Austin Chapter of the Texas Congress of Parents & Teachers (ACCPTA)
- 1995 Visiting Lecturer, Faculty of Physical Education, University of Otago, New Zealand.
- 1995 Guest Speaker, National Association of Rehabilitation Medicine, Republic of China.
- 1996 Dean's Fellow (Fall), College of Education, The University of Texas at Austin
- 2001 Inducted into Kappa Delta Pi Education Honorary
- 2001-07 Elizabeth Glenadine Gibb Fellowship in Education
- 2006 Innovative Instructional Technology Awards Program Gold Award for Teaching with Technology
- 2007-08 Catherine Mae Parker Endowed Professorship
- 2008 Dean's Fellow (Fall), College of Education, The University of Texas at Austin
- 2008- Fellow in Spence Centennial Professorship
- 2011 Inducted into Phi Kappa Phi Honor Society
- 2012 Ruth B. Glassow Biomechanics Honor Award, Biomechanics Academy, National Association for Sport and Physical Education
- 2014 Civitatis Award, presented by President Bill Powers, The University of Texas at Austin