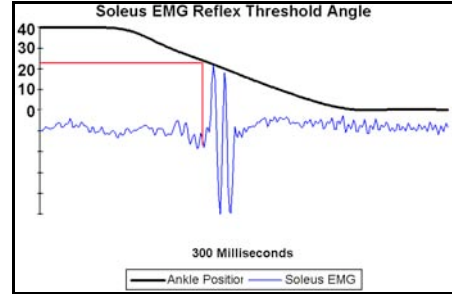
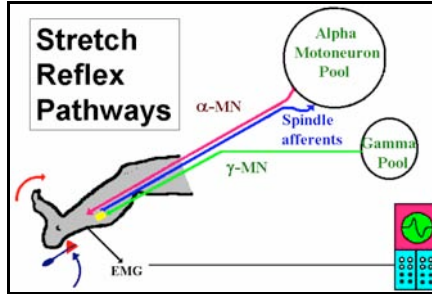


MOVEMENT SCIENCE FACULTY



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Motor Coordination Lab

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Dr. Abraham, Professor, is a member of the Graduate Studies Committee in Biomedical Engineering, and a member of the Institute of Neuroscience at UT Austin. Dr. Abraham studies the coordination of human movement, with particular emphasis on the interaction of neural and mechanical mechanisms. He is interested in applications in sport, in microgravity, and in clinical rehabilitation. Experimental techniques include obtaining kinematic, dynamic, and electromyographic measures as well as using musculoskeletal modeling to study optimal performance. Recent research efforts have addressed mechanisms underlying muscle spasticity following head injury or spinal cord injury, interactions between reflex and voluntary motor performance, and technical aspects of elite sport performance. Dr. Abraham also currently serves as the Chair of the Department of Curriculum and Instruction.

Selected Publications

- Allison, S.A. , & Abraham, L.D. (2002) "Sensitivity of qualitative and quantitative spasticity measures to clinical treatment with cryotherapy," *International Journal of Rehabilitation Research*, 24: 15-24.
- Hwang, I.S., & Abraham, L.D. (2001) "Quantitative EMG analysis to investigate synergic coactivation of ankle and knee muscles during isokinetic ankle movement," *Journal of Electromyography & Kinesiology*, 11: 319-335.
- Hwang, I.S., Abraham, L.D. , & Chou, S.W. (2000) "The effect of ankle joint position and effort on quadriceps reflex sensitivity," *Clinical Neurophysiology, Section: EMG and Motor Control*, 111: 1175-1183.
- Gonzalez, R.V., Abraham, L.D., Barr, R.E. & Buchanan, T.S. (1999) "Muscle coordination in one and two degree-of-freedom ballistic movements about the human elbow joint complex," *Biological Cybernetics*, 80: 357-367.

Recent Grants and Funding

- 1997-1998: "Evaluation of movement disorders following traumatic head injury," Healthcare Rehabilitation Center, Research Gift \$12,000.
- 1995-1997: "Neuromechanical postural control synergies supporting voluntary movement," NASA - Johnson Space Center, Regional University Grant Program, \$38,662.
- 1995-1997: "Musculoskeletal modeling of human upper extremity performance," NASA - Johnson Space Center, Regional University Grant Program \$59,385 (with R. Barr & M. Pandy).
- 1995-1996: "Development of a dynamic model for investigating postural control during arm movement," KRUG Life Sciences, Inc., Research Contract, \$20,005.