

Obituary

Kevin P. Granata, Ph.D. (December 29, 1961–April 16, 2007)



Kevin P. Granata, Ph.D. died on April 16, 2007 at Virginia Tech where he had worked since 2003. He was the founder of the Musculoskeletal Biomechanics Laboratory at Virginia Tech and held the rank of Professor in the Department of Engineering Science and Mechanics.

Dr. Granata received his B.S. degree in Engineering Physics from The Ohio State University in 1984, and then obtained a Master's Degree in Physics at Purdue University. He earned a Ph.D. in biomechanics in the Biodynamics Laboratory at The Ohio State University in 1993 where he used both analytical models and experiments with human subjects to determine the magnitude of muscle forces around the lumbar spine due to work tasks. He then took a job as a senior research engineer at the Biodynamics Laboratory for four more years.

In 1997, he became an Assistant Professor in the Department of Orthopaedic Surgery of the University of Virginia where he also was the Research Director of the Motion Analysis and Motor Performance Laboratory. He held a joint appointment in Biomedical Engineering. His work focused on understanding how brain injury in children with cerebral palsy interferes with balance and movement. He developed theories of the relationships between ankle and knee joint velocities during spastic gait, using his training in dynamics and control theory. He performed gait studies of children with cere-

bral palsy, including pre- and post-operative comparisons, to identify interactions between gait patterns and recruitment of multi-joint limb muscles. These theories are making their way into clinical practice, which was Kevin's goal.

After being promoted to Associate Professor, Dr. Granata moved to Virginia Tech where he soon achieved the rank of full Professor. At Virginia Tech, Professor Granata continued his work on trunk stability and the influence of walking speed on trunk stability. He had several collaborative efforts underway with both the University of Virginia and Ohio State University.

Kevin was a biomechanics pioneer. He was extremely logical and had a keen intellect. He was a big picture thinker and possessed a "moral intellect" in that he always tried to do the right thing. He questioned assumptions and had to convince himself of the validity of the assumption before he could move on to the next step. Through this rigorous logic, he was able to build a sound biomechanical basis for his research. Dr. Granata was a gifted engineer who applied his skills to the field of biomechanics. He combined his skills in physics, mathematics and engineering that allowed him to make distinctive discoveries. His scientific achievements were documented in 66 peer-reviewed articles published in a broad range of scientific journals. His productivity in his short career were

directed especially at two areas of control theory applied to neuromuscular control of movement including movement impairments in people with cerebral palsy and dynamic aspects of trunk stability. He pioneered the idea of reflex dynamics in trunk stability where he represented the trunk as a multi-joint system stabilized by muscles having activation dependent stiffness and reflex delays with variable gain.

Kevin was a talented lecturer and communicator. He was a mentor to his students whom he respected, and from whom he gained respect. His many students have moved on to influence others. While he delved into complex concepts to spinal stability, he was able to make these concepts understandable to everyone. He used simple models to clarify complex theoretical ideas.

He was a leader in the American Society of Biomechanics and also active in the American Society of Mechanical Engineering, the Gait and Clinical Movement Analysis Society, and the Human Factors and Ergonomics Society. He served as Associate Editor of the *Journal of Applied Biomechanics* and was a member of the editorial board of both the *Journal of Electromyography and Kinesiology* as well as *Human Factors*.

His immediate family that survives him includes his wife Linda and his three children, Alex, Ellen and Eric.

William S. Marras
Biodynamics Laboratory,
The Ohio State University,
United States