

Neil S. Cherniack MD
(1931-2009)

Neil S. Cherniack, M.D., a longtime member of the American Physiological Society (APS), former Editor-In-Chief of the Journal of Applied Physiology and a pioneering respiratory physiologist, died on October 21 at the age of 78. A renowned scientist, educator and clinician, Dr. Cherniack conducted research that contributed critically to defining the mechanism involved in the regulation of respiration and the control of breathing.

A native of Brooklyn, Neil graduated A.B. with Honors from Columbia University and MD from the State University of New York in Brooklyn. He did his residency in internal medicine and a fellowship in infectious disease at the University of Illinois, Chicago. Later he completed a research fellowship at Columbia's Cardiorespiratory Laboratory. As a captain in the US Air Force from 1958 to 1960, he worked at the Acceleration Laboratory at Wright Patterson Air Force Base in Ohio, where he was part of a project which selected the first seven Mercury astronauts. He then began his academic career as Professor of Medicine at the University of Pennsylvania and Director of the Pulmonary Disease Section. After a sabbatical at the Nobel Institute for Neurophysiology, Karolinska Institute, Stockholm in the laboratory of Professor Curt von Euler, he moved to the Case Western Reserve University School of Medicine, Cleveland, Ohio. His 18 years at Case Western Reserve University School of Medicine resulted in serving as the Dean and Vice President from 1990-1995; Vice Chairman of the Department of Medicine from 1986-1990; Associate Dean, Division of General Medical Sciences from 1983-1990; and Professor of Academic Program Development from 1977-1989. In 1995, he relocated to New Jersey, to be closer to his children and grandchildren and took on a new set of academic responsibilities at the University of Medicine and Dentistry of the New Jersey Medical School in Newark, where he became professor of medicine and physiology, vice chairman of research and director of clinical affairs and continued his research and teaching.

During his tenure at the Case Western Reserve University, he became nationally and internationally recognized for his work related to the neural and chemical regulation of breathing and the mechanisms which produce respiratory disorders like acute and chronic respiratory failure, sleep-disordered breathing and shortness of breath. In his early work, Dr. Cherniack applied control system theory to the regulation of breathing and developed a model of periodic breathing that revealed Cheyne-Stokes breathing as an instability physiologic control system. The mathematical models were extended to provide important insights into the mechanisms of sleep apnea. Dr. Cherniack's research was instrumental in defining the chemosensitive function of the ventral surface of the medulla and the mechanisms in the control system responses to hypoxia. His interest in respiratory regulation gave rise to a series of investigations into the mechanisms of respiratory failure in patients with lung disease. Utilizing ventilatory loading to simulate the mechanical abnormalities produced by lung disease, he demonstrated that in addition to chemical control, the non-chemical control mechanism also works to maintain blood gas homeostasis in the face of

alterations in ventilator system impedance and that defective non-chemical control may play an important role in the development of chronic respiratory failure.

Neil was a prolific writer and published over 400 original scientific papers, scores of books and book chapters. Besides being Chief Editor of JAP, he was an editor of the Handbook of Physiology. Neil was scientifically active till the end. He published four peer-reviewed papers in 2009 including his last paper a month prior to his demise entitled “Influence of arousal threshold and depth of sleep on respiratory stability in man: analysis using a mathematical model” in *Exp Physiol.* 2009. Neil was highly an accomplished individual. He was elected to many prestigious medical and scientific societies including American Society for Clinical Investigation and the Association of American Physicians. In 1991 he was awarded an honorary doctoral degree from the Karolinska Nobel Institute, Stockholm, Sweden. In the course of his career Neil traveled widely nearly to six continents to teach and learn. Neil was a very special man—he was brilliant, creative, a great leader and a wonderful mentor who was instrumental in shaping the professional careers of many physicians and scientists. Neil was unique in that his mentorship was one of asking leading questions and forming challenges to almost any topic brought up at a conference or presentation. His level of thought about a problem was very high, seemingly intuitive, but based on a fairly certain degree of fact or theory. He touched the lives of many people including physicians, basic scientists, students, and administrators, often in memorable ways. One legendary feat was for him to proceed to destroy a styrofoam cup of coffee, leaving bite-sized pieces in the bottom of a very short cup base. Try it the next time you are negotiating for something or listening to a research presentation! At his every stop, in his every position and with his every encounter, his impact and influence on people was enormous. He could always be counted on for his honesty, kindness, consideration, wisdom, selflessness, sense of humor and friendship.

Dr. Cherniack is survived by his wife, Sandra, and their three children, Evan, Andrew and Emily Cherniack Walsh; his sister, Karen Lederer; and six grandchildren, Yitzchok Zev, Ariella, Madeline, Luke, Diana and Carolyn.

By **Nanduri R.Prabhakar**
Department of Medicine
University of Chicago
Chicago, USA

Note: Prof.Neil S.Cherniack was the founder ‘Editorial Advisor’ of *Al Ameen Journal of Medical Sciences*. Sudden demise of Prof.Cherniack is a great loss for AJMS.