Editorial

Physiology Research in India: Heading Where?

In the year 1900, in an address to an assemblage of physicists at the British Association for the advancement of Science, Lord Kelvin stated, “There is nothing new to be discovered in physics now. All that remains is more and more precise measurement.” A similar statement was issued by the American physicist Albert Michelson. Both of them had to eat their words when, beginning in 1905, Albert Einstein threw open two new frontiers of physics, viz., relativistic physics and quantum physics. These discoveries were so portentous that scientists have ever since stopped writing any epitaph on science and its metamorphosis.

The earliest human quest for knowledge took the form of philosophy, which is the mother of all sciences. Philosophy encourages people to think and create new ways of doing things. With the passage of time, philosophy splintered into the sciences and the arts. While the arts explore, share, and recreate expressions of the human experience, science is the strategy for arriving at consensus answers to questions about the natural world. It focuses on discovering ‘facts’ and ‘mechanisms’. Through science, we make new discoveries. As science expanded, it trifurcated into physics, chemistry and the life sciences. The latter includes biology, botany, zoology, microbiology, physiology and biochemistry. The hierarchy continues farther as physiology gives way to newer frontiers like cell physiology and molecular biology.

How should physiology be defined today? The answer varies. On the website of University of Arizona, College of Medicine, Tucson, Physiology is defined as “the study of all molecular, cellular and organ level processes that support the life of an organism”; The Department of Physiology in the Perelman School of Medicine at the University of Pennsylvania states that their frontiers span the molecular to organ level to determine how the human body functions in health and disease. The Department of Physiology, Development and Neuroscience in the School of the Biological Sciences, University of Cambridge focusses on cellular and systems physiology, developmental and reproductive biology, neuroscience and form and function. In the University of Toronto, physiology teaching relates to how the body works in health and disease at all levels including molecular, genomic, proteomic, ionic, cellular, organ and whole organism. At the University of California, Los Angeles (UCLA), the Department of Physiology boasts of research approaches that are multidisciplinary, including electrophysiology and biophysics, molecular, cellular and whole-animal imaging, proteomics and X-ray crystallography. At the University of Oxford, Department of Physiology, Anatomy and Genetics, research includes cardiac science, cell physiology, development and cell biology, and functional genomics.

It is against such benchmarks, as noted above, that the quality of the post graduate courses in Physiology in India needs to be evaluated. Research yields the richest dividends when performed at the frontiers of pure science, as attempted by physiologists all the world over. As for this journal, a substantial chunk of papers are in the domain of clinical physiology, the reasons for which can be traced to our postgraduate physiology curriculum. It is against this backdrop that the research articles published in this journal should be judged, for better or worse. As the saying goes, “as we sow, so we reap”.

Sabyasachi Sircar
Editor (Physiology)