



НАУЧНО-ПРАКТИЧЕСКАЯ КОНФЕРЕНЦИЯ С МЕЖДУНАРОДНЫМ УЧАСТИЕМ  
«От молекулы к системной организации физиологических функций»,  
посвященная 90-летию со дня рождения член-корреспондента РАМН, профессора А.В. Завьялова

## DEVELOPMENT OF PHYSIOLOGY IN INDIA

Thakur Anurag Kumar

*KSMU*

### INTRODUCTION

The study of human physiology as a medical field originates in classical Greece, at the time of Hippocrates (late 5th century BC). Outside of Western tradition, early forms of physiology or anatomy can be reconstructed as having been present at around the same time in China, India and elsewhere. The development of physiology continues to this day in all countries of the world, including India.

### RESEARCH PURPOSE

To study the development of physiology in India.

### MATERIALS AND METHODS

To carry out this work, I studied the modern scientific literature on the development of physiology in India and the achievements of modern Indian physiologists.

### RESULTS

The father of Indian medicine, including physiology, is Sushruta, an Indian physician and writer, author of the main and leading Indian medical treatise Sushruta Samhita. The time and place of Sushruta's life are not exactly known: he lived no later than the end of the 8th century, but his book is still relevant for modern doctors.

In 19th century CE, under the influence of great Greek and Roman Civilizations, the idea to originate and develop 'Physiology' as an important branch of the then modern science emerged. For the colonial

British rule in India, following the European system of medicine, the teaching of physiology was introduced in Sanskrit School, Calcutta and Calcutta Madrasa in 1826 followed by in the Medical College, Calcutta, where physiology was taught as an introductory subject of medicine in 1835. The idea of studying physiology as a fundamental science at the Faculty of Natural Sciences belongs to S. K. Mahalanobis, who received a Bachelor of Science degree in Physiology from the University of Edinburgh, UK. The training and experience he gained while in UK motivated Mahalanobis to meet Governor of Bengal and apprised him about the importance of the subject - Physiology, as an important subject of Biological sciences. Accordingly, in the latter part of 1900 CE, he was posted in Presidency College, Calcutta, as Head of the Department of Biology (Physiology and Botany combined). The topic covered in the Physiology syllabus of both Undergraduate and Post-Graduate courses included: Cardiovascular physiology, Respiratory physiology, Blood and tissue fluids, Skin, Body temperature, Digestive system, Metabolism, Enzymes, Nutrition, Biophysics, Excretion, Endocrine, Reproduction, Nervous system, Special senses and Nerve, Muscle physiology. Physiology did not exist as a separate discipline in India in the first half of the twentieth century. It was only when the teaching of this subject was started as a separate non-medical discipline at the University College of Science that it began to do so. Indian Physiology during the period apparently based on research spirit and methodology of the western schools of thought.

Autar Singh Paintal M.D. Ph.D. (1925–2004) was a medical scientist who made pioneering discoveries in the area of neurosciences and respiratory sciences. His major contribution to the world of Science is the development of a single-fiber technique for recording afferent impulses from individual sensory receptors. Paintal discovered several sensory receptors including atrial B receptors, pulmonary J-receptors, ventricular pressure receptors, stomach stretch receptors, and muscle pain receptors.

Dr. Har Gobind Khorana (1922 -2011), was an Indian-American scientist who shared the 1968 Nobel Prize for Physiology or Medicine with Marshall W. Nirenberg and Robert W. Holley for research that showed how the order of nucleotides in nucleic acids, which carry the genetic code of the cell, control the cell's synthesis of proteins. He deciphered the genetic code and its role in protein biosynthesis.

Professor Bal Krishan Anand (1917–2007), better known as B. K. Anand, was a famous Indian Physiologist and Pharmacologist. He was credited for the discovery of feeding center in Hypothalamus in 1951. He is considered as the founder of modern Neurophysiology in India.

Thus, the development of physiology in India has a long historical path and continues to this day. Indian physiologists are making a tangible contribution to the development of modern physiology and medicine.

### CONTACTS

anuragthakur102@gmail.com