



# Early History of Sleep Research and Sleep Medicine in India

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Nowadays when one thinks of sleep medicine, the image that comes to one's mind is that of a place with a polysomnograph and several other related gadgets. William C Dement who established the world's first Sleep Disorders Clinic at Stanford University in 1970, did not have a so-called "polysomnograph", although the Stanford clinic was recording sleep and treating narcolepsy, and later insomnia, using the polygraphs. During the late 1960's, many hospitals and labs around the world including India were recording sleep using polygraphs for treating patients with sleep disorders. In fact, the term "polysomnogram" was first coined only in 1974 by Jerome Holland to describe the measurement of multiple physiological parameters during sleep [1–4].

As in the case of the western world, the history of sleep research in India is older than the history of modern sleep medicine. Early sleep researchers paved the way for the development of sleep medicine in India. Though All India Institute of Medical Sciences (AIIMS), New Delhi was established in 1956, sleep was one of the focus areas of research of T Desiraju, BK Anand and GS Chhina of the Department of Physiology, at AIIMS, right from the 1960's [5–9]. The contributions of Desiraju on neural regulation of sleep are well recognised worldwide [10–13]. Sleep research got a boost when the International Brain Research Organization, led by DP Purpura, from Albert Einstein College of Medicine, held one of its earliest workshops at AIIMS in the late 1960s. Apart from DP Purpura, sleep scientists like Mauro Mancia from Milan, came here to work on sleep physiology on non-human primates [14, 15]. Mancia was a disciple of Giuseppe Moruzzi, the co-discoverer of Ascending Reticular Activating System.

Another significant event was the holding of a symposium on "Consciousness" by T. Desiraju during the XXVI Congress of the International Union of Physiological Sciences in New Delhi in 1974, which had DP Purpura, M Steriade, M Mancia, NP Bekhtereva and MH Chase as some of the participants. Incidentally, Desiraju was the founder Vice President of the Indian Society for Sleep Research (ISSR). Recording of single neuronal discharge from the brain in conscious monkeys was a major contribution by him.

Sleep research in the Department of Physiology, AIIMS got a boost when Baldev Singh, the famous Neurologist, joined the department as emeritus professor in 1965 [16, 17]. Singh's interest in sleep dates back to the time when he worked in Gibb's laboratory, at the Illinois Neuropsychiatric Institute, Chicago. Gibbs and Fuster believed that sleep induced spike activity in temporal lobe epilepsy. Naturally, Baldev Singh's interest in sleep continued after his return to India. Even before joining the Department of Physiology, he participated in neurophysiological investigations on sleep and wakefulness with T Desiraju, BK Anand and GS Chhina. Sleep was recorded and analysed on the basis of EEG, EMG and EOG on patients referred to him from the departments of neurology and psychiatry at AIIMS Delhi, from the late 1960's. He had guided many postgraduate students on sleep-related projects like electro-sleep and erectile dysfunctions.

The Indian Society for Sleep Research (ISSR) was founded on 10th September 1992 [18]. The founding ceremony was held during the "International Conference on Sleep–Wakefulness" in New Delhi on 9–11th September 1992. Owing to the initiatives of ISSR, there has been increased public awareness about sleep medicine. This has led to the growth of this field during the past few years.

The prohibitive cost of polysomnographs prevented many hospitals and labs from acquiring them [19]. Even private hospitals were hesitant, as they were not sure about the return that they will get from sleep studies done with this costly machine. Even the premier institute of the country like AIIMS got this machine much later. The first polysomnography machine was installed in the pulmonary medicine

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department in Safdarjung Hospital in New Delhi in 1995. The rapid sale of sleep machines in India occurred with the recognition of obstructive sleep apnoea syndrome as a major health issue, and non-invasive positive pressure ventilation as an accepted treatment mode. The clinical interest in sleep disorders grew rapidly in India, as the industry saw a big business opportunity in the sale of sleep recording and positive pressure ventilation machines in this country with a population of more than 130 million.

In spite of the great leaps that we have made, even in the most affluent countries, the general public is still ignorant about the importance of sleep. In this context, it very pertinent to quote from the famous book of Dement ‘The Promise of Sleep’. “After all the research I have done on sleep problems over the past four decades, my most significant finding is that, ‘ignorance’ is the worst sleep disorder of them all. People lack the most basic information about how to manage their sleep, leading to a huge amount of unnecessary suffering. The fact is that both doctors and the general public know almost nothing about the vast store of advancement in modern sleep medicine and sleep physiology. Awareness about sleep and sleep disorders amongst doctors and the general public including our children and administrators is the need of the hour. We will not only live a healthy life but also prevent many unwanted deaths”.

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