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## IN MEMORIAM

## IN MEMORIAM - Irwin Feinberg, MD

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It is with great sadness that we share the news of the passing of Irwin (Bob) Feinberg, an outstanding scientist, mentor, and physician, on August 25, 2022, aged 94.

Irwin was born in Brooklyn to Fannie and Harry Feinberg. After earning his medical degree from NYU in 1955, he trained at Boston Psychopathic Hospital, NIH, St. Elizabeth's Hospital, and under Jean Piaget at the Institut des Sciences de l'Education in Geneva, Switzerland. He worked at NIH, Downstate Medical Center SUNY, UCSF (where he was Vice Chair, and Chief of Psychiatry at the SFVA), SUNY Stony Brook and VAMC Northport NY, before joining the UC Davis Department of Psychiatry and Behavioral Sciences in 1989. He was UC Davis Director of Psychiatry Research from 1989 to 1998. He served on the National Board of the American Civil Liberties Union from 1971 to 1981.

His research career spanned more than six decades from his first publication in 1956 to his most recent in 2022. As one of the first to recognize the value of studying sleep, he was a founding member of the Sleep Research Society and a recipient of their Distinguished Scientist award in 1996. He was a Member Emeritus of ACNP, and was accepted into ACNP membership in 1981. His approximately 200 peer reviewed publications covered a wide range of topics from the mechanisms of hallucinations and models of sleep regulation to his theory on schizophrenia, which was 40 years ahead of its time.

His observation on age-related changes in sleep cycles led him to propose that sleep serves a recuperative function for plastic neuronal systems and that the intensity of the recuperative process is related to the intensity of slow wave EEG activity during non-rapid eye movement sleep. His observation on the similarity of maturational curves for slow wave EEG activity, cerebral metabolic rate, and synaptic density led to his 1982 "Feinberg Hypothesis" that synaptic pruning during adolescence could go awry, leading to mental illness, and could explain the age of onset of most cases of schizophrenia. See the video "Connections: Dr Feinberg and the Pruning Hypothesis" <https://www.youtube.com/watch?v=R6uBY7Ts3VI>.

In a landmark 1978 paper, he proposed that auditory hallucinations of schizophrenia are caused by a defect in the corollary discharge systems of thought. He noted that this abnormality could be viewed as an inability to distinguish self-initiated neural activity from neural activity caused by external stimulation.

In 1987, he proposed a parsimonious explanation for the puzzling occurrence of eye movements during REM sleep, which cannot be predicted from dream imagery. These movements might be manifestations of the same inhibitory escape during REM that stimulates somatic muscles, causing twitches. However, unlike somatic muscle movements, eye movements are not suppressed simply because they do not cause waking.

Over his years of teaching, research, and mentoring he influenced countless students, residents, sleep lab employees, post-doctoral fellows, and visiting scholars. He was predeceased by half siblings Samuel and Beatrice. He is survived by his wife Janet, sons Noah and Gabriel, and brothers Saul and Elliot.

Ian G. Campbell<sup>1</sup>✉, Nicholas Rosenlicht<sup>2</sup> and Jonathan D. March<sup>3</sup>

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