

Bernard Katz Biography

Bernard Katz

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Contents

Bernard Katz Biography.....	1
Contents.....	2
Biography.....	3

Biography

Katz was born in Leipzig, Germany, on March 26, 1911. He received his M.D. from the University of Leipzig in 1934, just as Adolf Hitler (1889-1945) was gaining power in Germany. Katz, who was Jewish, left his homeland for England where he pursued his post-graduate studies at the University of London. He eventually earned a Ph.D. in 1938 and a Sc.D. in 1934 from London.

During his years in London and (briefly, during World War II) Sydney, Australia, Katz worked with other scientists on the transmission of nerve impulses along a neuron and across the synaptic gap between neurons and muscles. With Alan Hodgkin (1914-) and Andrew Huxley (1917-), he found that the movement of a nerve impulse along a single neuron can be described in terms of the diffusion of potassium and sodium ions across the cell membrane. This diffusion of ions creates a small electric potential that corresponds to the movement of the electrical impulse in the neuron.

In the 1950s, Katz concentrated on the transfer of the nerve message across synapses, the spaces between neurons or between neurons and muscle cells. Earlier research by Henry Dale (1875-1968) and Otto Loewi (1873-1961) had indicated that the neural message is carried across the synaptic gap by means of a chemical substance, a neurotransmitter, later identified as acetylcholine.

Katz eventually found that molecules of acetylcholine are apparently "packaged" in tiny vesicles stored at the end of a neuron. Upon stimulation, the neuron releases packages of acetylcholine that travel across the synapse and stimulate the adjacent muscle cell or second neuron. For this discovery, Katz was awarded a share of the 1970 Nobel Prize for physiology or medicine. He was also knighted by Queen Elizabeth II (1926-) in 1969.