

William Maddock Bayliss and Ernest Henry Starling Biography

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Biography

In 1902, William Bayliss and Ernest Starling collaborated in the discovery of secretin, which they named hormone. The men became brothers-in-law as well, when Bayliss married Starling's sister in 1893. Bayliss was also noted for work on Vaso-motor reflexes and treatment of surgical shock in World War I. Starling was also noted for studies of the heart, circulation, and kidneys.

Bayliss was born into a wealthy manufacturing family in Wolverhampton, Staffordshire, England. He first intended to become a physician and studied medicine at University College, London, but opted instead to study physiology at Oxford University. In 1888 he joined the faculty at University College.

Starling was born in London into a professional family--his father was a lawyer. He received his medical degree in 1889 from Guy's Hospital, London, where he became a lecturer in physiology. He met Bayliss in 1890 while doing research at University College and joined its faculty in 1899. That same year, Starling showed that food in the intestine triggers a nerve signal that causes some intestinal muscles to contract and others to relax. The action produces the wave pattern called peristalsis that moves food through the intestine. The discovery is sometimes called Starling's Law of the Intestine.

The Bayliss-Starling collaboration on hormones began in 1902 when they studied pancreatic secretion of digestive fluid as food leaves the stomach and enters the intestine. The Russian physiologist, Ivan Petrovich Pavlov, believed the secretion was controlled by nervous system signals. Hoping to prove this through experimentation, Starling and Bayliss cut the nerves of an animal's intestine, then injected food from its stomach into its intestine. The experiment disproved Pavlov's theory; the pancreas produced digestive fluids normally. Further investigation showed that the signal to the pancreas was chemical. The intestinal wall secreted a substance into the bloodstream that stimulated the pancreas. They named this substance secretin.

In 1905 they used the word "hormone" (from the Greek, meaning shock or impulse) to refer to secretin. Based on the earlier work of Edward Sharpey-Schäfer, Jokichi Takemine, and John Jacob Abel, Bayliss and Starling applied the term to the entire class of chemicals that work in this manner.