Virginia Apgar (1909-1974) [1]


Virginia Apgar worked as an obstetrical anesthesiologist, administering drugs that reduce women's pain during childbirth, in the mid-twentieth century US. In 1953, Apgar created a scoring system using five easily assessable measurements, including heart rate and breathing rate, to evaluate whether or not infants would benefit from medical attention immediately after birth. Apgar's system showed that infants who were previously set aside as too sick to survive, despite low Apgar scores, could recover with immediate medical attention. Additionally, Apgar researched the effects of anesthesia used during childbirth and advocated for the prevention and management of birth defects [5]. Apgar's work led to a decrease in infant mortality rates in the mid-twentieth century and into the twenty-first century, and hospitals around the world still use the Apgar score at one and five minutes after birth.

Apgar was born on 7 June 1909 in Westfield, New Jersey, the youngest of three children, to Helen May Apgar and Charles E. Apgar. Apgar's father worked as an insurance executive but dabbled in amateur inventing and astronomy. As a child, Apgar learned to play violin and attended primary school. According to physician Selma H. Calmes, Apgar's experience with an inventive father and chronically ill brother contributed to her decision to pursue medicine. After graduating from her hometown's Westfield High School in 1925, Apgar enrolled in Mount Holyoke College in South Hadley, Massachusetts, that same year.

At Mount Holyoke, Apgar majored in zoology, the study of animals. Aside from her studies, she worked several part-time jobs and participated in extracurricular activities, including playing seven sports, writing for the college newspaper, acting in theatre performances, and playing violin in the orchestra. After graduating in 1929 with a bachelor of arts in zoology, Apgar entered medical school at Columbia University [6] College of Physicians and Surgeons in New York City, New York. She was one of nine women in an incoming class of ninety.

In 1933, Apgar graduated fourth in her class and began a two-year internship with the surgical department at Presbyterian Hospital, later called Columbia-Presbyterian Medical Center, in New York City. However, Apgar switched her area of focus at the suggestion of her mentor, surgeon Allen Whipple. Because most surgeons were male, Whipple encouraged her to pursue anesthesiology, the study of administering drugs that reduce sensitivity to pain. In 1936, though already a physician, Apgar attended a training course for nurse-anesthetists at Presbyterian Hospital. She then participated in two residency programs in 1937, one at the University of Wisconsin in Madison, Wisconsin, and the other at Bellevue Hospital in New York City.

After finishing her anesthesiology training, in 1938 Apgar became the director at Presbyterian Hospital of the hospital's new anesthesiology division. That appointment established her as the first woman to head a division at Presbyterian Hospital. Her job entailed recruiting and training anesthesiology residents, as well as training other medical residents who rotated through her division. Apgar was also involved with the hospital's anesthesia research. Her early research included studying curare, a nerve poison from the bark of a South American tree, as an anesthetic, and the use of the hormone norepinephrine in surgery.

In 1949, the anesthesiology division at Presbyterian Hospital became a full department, but Apgar did not take the position of department chair. Instead, she became the first woman to hold a full professorship at Columbia University [6] College of Physicians and Surgeons. Apgar continued teaching medical students as well as researching obstetrical anesthesia, or anesthesia used during childbirth.

In 1953, Apgar published a paper on the system she had devised to score an infant's health directly after birth. In the paper, Apgar noted that the methods of evaluating newborn infants at that time were highly subjective. Her system, later called Apgar score, required a nurse or physician to score the infant in five categories within sixty seconds after birth. Those five categories for evaluation were: the infant's heart rate, how well the infant breathed, how well the infant responded to stimuli, how well the infant's muscles worked, and the color of the infant. According to Apgar, the nurse or physician scored each category as zero, one, or two, and the individual category scores were added to obtain the infant's total score. Total scores ranged from zero to ten, with zero indicating that the infant was in very poor condition and ten indicating that the infant was in excellent condition.

After developing her scoring system, in the mid-1950s Apgar worked with other researchers to test how the scores varied based on other aspects of childbirth, including labor, delivery, and maternal anesthesia. With her colleagues at Columbia University, pediatrician L. Stanley James and anesthesiologist Duncan A. Holaday, Apgar published several reviews of the scoring system. The team evaluated the performance of the Apgar score at other hospitals and proposed potential revisions.
Sources

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