

## The Medical Disqualification of Deke Slayton

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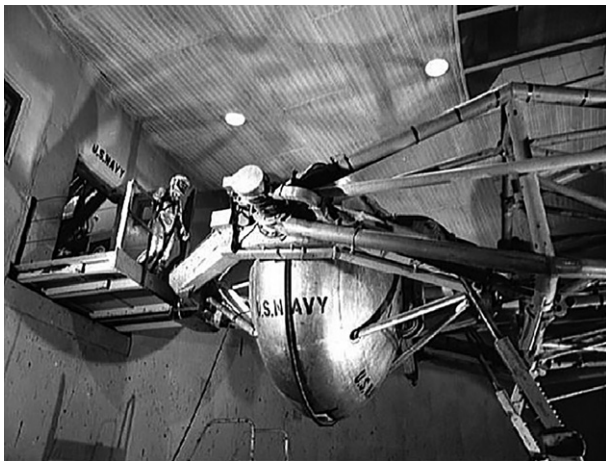
The National Aeronautics and Space Administration (NASA) officially came into being on July 29, 1958, with the National Aeronautics and Space Act of 1958. On April 9, 1959, NASA publicly presented with great fanfare its first seven astronauts, after a rigorous medical selection process initially begun at the Lovelace Clinic. Donald “Deke” Slayton was one of the “Mercury Seven”, with 3500h of flying time and 34yr of age at selection.

On August 27, 1959, during a training course at the Naval Air Development Center using the Johnsville centrifuge (Fig. 1), he was found during the precentrifuge run to have erratic heart activity. This prompted his flight surgeon, Lt. Col. William Douglas, to admit him to the Philadelphia Navy Hospital. An electrocardiogram showed that he had atrial fibrillation/flutter with a ventricular rate of 70. He spontaneously converted back to a normal sinus rhythm the next morning. He was then further evaluated at the U.S. Air Force School of Aviation Medicine at Brooks Air Force Base, TX, on September 21, 1959, by Dr. Larry Lamb (cardiologist), who felt that the arrhythmias were unpredictable, but frequent, and would impair his flight performance. Dr. Lamb also pointed out that it would be disqualifying for Slayton’s Air Force flying status.<sup>1</sup> While at Brooks he had intermittent atrial fibrillation with a rate of 70. It was also discovered that he had a history of an episode of syncope of unknown etiology in 1946. The NASA Manned Spaceflight Center flight surgeons determined

that the intermittent arrhythmia was of no clinical consequence and he was allowed to remain on flying status.

In early 1962, NASA Administrator James Webb reopened an investigation into Slayton’s atrial fibrillation.<sup>2</sup> The Air Force Surgeon General, Gen. Oliver Niess, convened a military physician panel, which cleared him to fly. No cardiologists were on this panel. Eugene Zuckert, the Secretary of the Air Force, requested that a panel of civilian physicians also examine Slayton before final clearance could be granted. Drs. Proctor Harvey (Georgetown University), Thomas Mattingley (Washington Hospital Center), and Eugene Braunwell (National Institutes of Health) were the examining cardiologists. Their conclusions were unanimous. On March 15, 1962, 2 mo prior to Slayton’s launch of *Delta 7* (the second U.S. manned orbital spaceflight), he was medically disqualified from the flight and replaced on the mission by Scott Carpenter. Initially, Slayton’s ineligibility was only for this assigned mission, but he later was declared ineligible to fly on any of the remaining Mercury missions after another evaluation that had been requested by Bob Gilruth<sup>3</sup> and performed by cardiologist Paul Dudley White (National Heart Institute).

At this time, all of human experience with spaceflight was measured in hours, and the physiological response of humans exposed to the rigors of a spaceflight (acceleration, microgravity, radiation) was completely unknown. The Mercury in-flight medical kit was very rudimentary (Fig. 2), but it did contain injectable and oral medications such as an antiemetic (trimethobenzamide), an analgesic (meperidine), a vasoconstrictor, and a stimulant.<sup>4</sup> NASA was seeking physiologically ideal human specimens for the early spaceflight program to ascertain the effects of spaceflight on human physiology. Scott Carpenter ended up making that second flight and Slayton was grounded for the next 13 yr. Slayton became the Chief of the Astronaut Office and then Director of Flight Crew Operations.



**Fig. 1.** The Navy Johnsville centrifuge that was used extensively during the Mercury Program. Image courtesy of the U.S. Navy.

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**Fig. 2.** The Mercury in-flight medical kit carried on John Glenn's flight. Image courtesy of NASA.

This decision for disqualification came through NASA Headquarters and was announced at a news conference with Dr. Hugh Dryden, NASA Deputy Director, and Dr. Chuck Roadman, Director of Life Sciences at NASA Headquarters. Still, many senior NASA personnel at the Manned Spaceflight Center—Dr. William Douglas, Dr. Stan White, Bob Gilruth, and Walt Williams—were confident that Slayton should not be disqualified. Dr. Douglas and Dr. White were adamant and fought hard against the decision even after it was publicly announced, which probably led to their replacement. Lt. Col. Charles Berry was brought on at about this time as the Director of Medical Operations.

While grounded, Slayton took several measures to attempt to be restored to flight status, including regularly exercising, taking vitamins, quitting cigarette smoking, decreasing coffee intake, and reducing his consumption of alcohol. During the 1960s, he had intermittent episodes of atrial fibrillation between monthly and weekly. He occasionally took quinidine between March 1967 and October 1969. This treatment was apparently successful and his last episode of atrial fibrillation (self-reported) was on July 17, 1970.

In 1971, Slayton was examined at the Mayo Clinic and, after a long period without any objective evidence of recurrent atrial fibrillation and also after undergoing a cardiac catheterization on December 8, 1971, he was determined to not have a disqualifying coronary condition. On March 13, 1972, NASA announced that Slayton had returned to flight status.<sup>5</sup>

In July 1975, he flew aboard the first joint American-Soviet space mission, Apollo-Soyuz Test Project. Two NASA flight surgeons (Drs. Hawkins and Winter) were replaced by Cris Kraft 2 d prior to launch for demanding that a detection of an arrhythmia in Slayton on the launchpad would initiate a scrub of the launch.<sup>6</sup> There were no arrhythmias seen on routine heart monitoring during the mission. The crew was exposed to nitrogen tetroxide fumes during landing and developed severe chemical pneumonitis, followed by full recovery.<sup>7</sup>

Slayton died of a brain tumor in 1993 at the age of 69.

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