

Alumni Newsletter



UCSF School of Medicine, Class of 1963
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Being Prepared - Knowledge Gained From Medical Schools

Unquestionably, I enjoyed and gratefully appreciated the very high degree of excellence of the teaching faculty at our medical school at UCSF. The lessons prepared us well for the scholarly demands that later on would be placed upon us during the next decades of our clinical or academic careers. We learned how to find some answers to the questions posed, but the answers changed with the advent of newer theories and high-tech procedures.

After Internship 1963-1964, we all faced those mandatory military “Doctor Draft” special responsibilities that had been enacted into law by

Congress.¹ I chose to enter the U.S. Air Force after my internship had concluded at Wadsworth Veterans hospital in West Los Angeles. I was planning for a possible military career in Aerospace Medicine with the potential to be selected for one of the Astronaut Training and Research programs. A trip to Washington D.C. in 1963 to discuss my military alternatives resulted in being deployed as a flight surgeon to Incirlik Airbase near Adana, Turkey, which was the first step in attaining a position in the aerospace medicine program.

Air Force regulations required that I first enter *Brooks School of Aerospace Medicine* in San Antonio, Texas, prior to my military deployment. The flight surgeon's medical training in San Antonio was outstanding and one of the most fascinating experiences of my life. Instructions were very detailed and included classroom lectures, laboratory work and practical training exercises. The Flight Surgeon's preparation lasted three months, before I was shipped off to Turkey on the 1st of December 1964. There were many wonderful experiences during my tour of duty at Incirlik Air Force Base. Some of those tales will be the subject of future articles for publication in our UCSF Newsletters.

As our other classmates who served as flight surgeons will remember, the program to train physician specialists about the physiological stresses, which may be encountered in flight, was based upon the increased aircraft accidents that occurred with the early military flights during World War I. Pilots were being trained to fly more powerful aircraft that were capable of attaining much higher speeds and altitudes. Above 12,000 feet altitude, the diminished oxygen levels had serious and adverse effects upon the behavior of the flight crews. Hypoxia resulted in increased numbers of otherwise preventable accidents that caused unnecessary loss of lives and the aircraft. In modern times, civilian and military aircraft routinely fly at altitudes ranging up to 45,000 feet. Reconnaissance aircraft have attained altitudes in excess of 80,000 to 100,000 feet, which require full pressure suits for survival of the crew. The SR-71 was capable of flying at amazing speeds up to Mach-3, three times the speed of sound. Such a speed was so fast that the maps were computerized and controlled from the airbase, because the pilot could not flip pages of a map book fast enough.

¹United States Vietnam-era special doctor draft.

At either high speeds or altitudes, there are unique survival problems when a pilot must make an emergency ejection from his aircraft. Since the 1950's, aircraft have accelerated to supersonic speeds that preclude ejection from the aircraft except in enclosed capsules. Astronaut-piloted craft have reached orbits exceeding 250 miles above sea level. They have travelled distances over 250,000 miles in order to orbit and land on the moon. Each of these circumstances required the input of many teams of scientists and physicians, who researched the effects of high altitude stresses upon the flight crews.

Originally, "flight medicine" was a specialty developed as a part of the U.S. Army Air Corps medical services. However in 1947, an independent U.S. Air Force was separated from the Army. During that year, Charles Yeager flew faster than the speed of sound for the first time in history. He required a partial pressure suit to survive. His flight became the catalyst for new military planning to develop the Aerospace Medical Research program. In 1959, Brooks Air Force Base opened in San Antonio, Texas, which was designed for the research of all facets of modern flight.



Brooks also served as an investigative center for NASA's projects, which included the subsequent manned-flights in space. The pressurized suits that enabled the astronauts to perform extra-vehicular work and

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“space walks,” as well as for the spectacular moon explorations were researched and designed at Brooks Aerospace Center. The results from medical research at Brooks led to the successful manned orbital flights, the Space Shuttle program and the International Space Station endeavors. NASA’s newest strategies are being directed toward the campaign for a return series of expeditions to the moon and inspiring future manned voyages to colonize the planet Mars.



School of Aerospace Medicine, Brooks AFB

Surely the most dramatic aspects of my tour of duty at the Aerospace Medical School were the experiences of the fieldwork. Not only was the experience fascinating, but also during my service at Incirlik Airbase, the lessons learned at the school paid many dividends.

Flight Surgeons are required to fly in many different types of aircraft, including fighters, bombers, transports and helicopters. We were not allowed to fly in the intelligence gathering planes, but we had to understand the very complex environments endured by the flight crews. We were trained to understand the stresses that could be experienced in all categories of aircraft.

Imagine flying in a jet fighter and experiencing a flameout or an explosion. Of course, one would have to eject oneself from the craft. If you delayed the ejection in a two-seater craft, the pilot would make the decision for you. The ejection mechanism is located in the armrest and one must “pull” it hard to engage the trigger. This activity might be at high speed

or at high altitude. Perhaps ejection would be required close to the ground or tarmac.

If you could remember the most severe spanking you ever suffered, it would pale in comparison to the spanking that one receives during ejection from an aircraft on a rocket-armed seat. The entire “package” is ejected, seat and pilot with his parachute harnessed. We were required to experience a modified “ride” on a rail, but with diminished firepower under the seat. The ride up the rail was more punishing than traversing

Disneyland’s worst “E” ticket roller coaster. The experience can be described as an enormous jolt as one is “pushed” by the explosive.

Only afterwards does one realize how painful is your “sphincter.” The photo shows that my eyelids were closed; I don’t remember that part of the trip. Perhaps it was a good time for prayer;



certainly one could not be too casual about what the Master Sergeant expected you to do.

Amazingly, I do remember going up and then down the rail. Being strapped securely into a very hard aircraft-styled seat. I also remember a very loud explosion from the seat-charge and then felt my “butt” aching. With severe pain, neurological reflexes act first and automatically. The cognitive aspects appear afterwards. I was released from the harness



and permitted to limp off the platform.

The alternative to ejecting from an aircraft would be to use the parachute that one had been harnessed to prior to the flight. The instructors were very wise to teach us to fall without being injured. The exercises were practical, albeit unnatural to want to fall purposely. We were taught to fall down in any of several directions. The lessons then proceeded upward in height to jumping from a small step and then from a one-meter platform. The final trial was performed by jumping from a 30-foot tower.



One doesn't automatically want to jump from a 30-foot height. To encourage us to jump, we were forcefully pushed off the tower by the Sergeant. Our free-fall was broken at a height of about 20-feet, whereupon we began to swing in mid-air from the tether cord that was fastened to the top of the tower. The experience was supposed to simulate the sudden jolt of the opening and release of the parachute. The Sergeant made the decision to let me fall the remaining distance to the ground, when he decided which direction he wanted me to free-fall. We had already known that drill; it was not a dainty maneuver.

I guess that I must have landed properly, since I was able to get up and walk away unhurt. I don't remember which direction I landed, except DOWN. Practice made for perfect results, so we drilled again and again. Please notice my perfect form, as I made my final landing in the sand. I only laughed when I watched my



colleagues bounce off the ground. Someone else had to take my picture.

One final field test was designed to teach us the proper method of extricating ourselves from the parachute. The exercise was vital if one had to parachute over water and the lesson was a simulation of landing in water with the parachute still harnessed. In such a case, the wind could pull the chute and drag one under the sea. To get out of the situation, we practiced being pulled by a tractor that was attached by cable to our harness.



One had to roll over onto our back to be able to reach up to the release the cleat that opened the harness. Did I mention that it was a rainy day and we slipped and slid in the mud? At the end of the day we returned home to our residence apartments. Our wives demanded that we first strip naked in the courtyard and then wash our feet in the garden before being permitted into the apartment for a much-needed shower. We “docs” tolerated those indignities in the service of our country.

Every banquet is follow by desert. However, this treat was not chocolate. We were outfitted with our first flying gear and a helmet with radio-transmitter for voice communications with the pilot. We had been well briefed in a pre-flight class. Each of us took turns flying in the T-33 two-seat jet trainer. Our pilots were whizzes.



Rollout was followed by a gentle right turn as we gained altitude according to the flight plan that had been filed at base-ops. So far, so good. No sweat – I thought. When the

aircraft arrived at its designated altitude, the pilot offered to show me the numerous flight capabilities of the T-33. For a small jet, this “mother could “haul!” We flew up, down, and around. We flew loops and flips, and turned over and over so many times that I could not figure out which way was up or down or where the sky should appear. I was given the “stick,” but I could not respond because I was unable to lift my arms from the seat rests. We were pulling only 3-G’s, but it felt like a hundred. Sweat started to pour down my face, neck and back. I swear that there were no other “trickles.” And, no barfing either, although the thought had certainly crossed my mind.

At last we gratefully descended and made a very nice landing, which was as smooth as glass. The cockpit hatch was “popped” and I was helped out to stand on the wing and breathe the fresh air. WOW, what a ride it was!!! Marlene was waiting for me on the tarmac to return home. She drove, I rested. Somehow, I just wasn’t very hungry for dinner.

Oh, what we doctors must sacrifice in the service of our country. Good ole stunt flying builds sturdy character and better hand-eye coordination. Thank you UCSF and Brooks for preparing me for the fascinating military duties. Air Force, Air Force, Rah, Rah, Rah!

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