

GEMINI OBJECTIVES

TO INCREASE OPERATIONAL PROFICIENCY AND KNOWLEDGE OF TECHNOLOGY IN MANNED SPACE FLIGHT

- INVESTIGATE LONG DURATION FLIGHT
- DEVELOP RENDEZVOUS TECHNIQUES AND POST DOCKING MANEUVERS
- DEVELOP RE-ENTRY FLIGHT PATH CONTROL
- ATTAIN FLIGHT AND GROUND CREW PROFICIENCY
- DEVELOP EXTRA VEHICULAR CAPABILITY
- CONDUCT SCIENTIFIC EXPERIMENTS

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FIGURE 4

In general, the environmental hazards and effects on man appear to be of less magnitude than originally anticipated. The principal physiological changes noted were orthostatism for some 50 hours postflight as measured with a tilt table; reduced red-cell mass of 5 to 20 percent; and reduced X-ray density (calcium) in the os calcis and the small finger.

No abnormal psychological reactions have been observed, and no vestibular disturbances have occurred that were related to flight. Although much remains to be learned, it appears that if man is properly supported his limitations will not be a barrier to the exploration of the universe.

Medical experiments program

Specifically, the four major objectives of the medical experiments program, which was a major activity in the investigation of long duration flights, were to determine effects, mechanisms, predictive means, and most effective preventive or correct measures.

All of the Gemini experiments were directed toward the first objective, the determination of the effects of space flight on man and the time courses of these effects. Experiments such as the phonoelectrocardiogram, bioassay of body fluids, mineral balance, human otolith function, and the red cell mass and blood volume studies are all contributing data on mechanisms by which these effects are manifested. The in-flight exerciser may prove to be of value as an in-flight predictive index of circulatory changes as they might unfavorably affect postflight activities. Cardiovascular reflex is the evaluation of a technique to prevent circulatory de-adaptation during space flight.