

Abstract
Health and Fitness Evaluations for Long Duration Microgravity Exposure

Sean Kevin Roden, M.D. and Patricia Ewert, M.D.

Background:

Medicine has been an integral part of NASA flight operations since its beginning. NASA has made advances with each subsequent program. Starting with Mercury through ISS and now preparing for Constellation.

Current:

Crewmembers rotating aboard the International Space Station (ISS) devote a significant amount of time to medical operations. Periodic Health Status (PHS) examinations requires crew members to perform these exams on each other monthly. The crewmember enters the examination data into the medical computer. This is down-linked to the flight surgeon (FS) for review. The crewmember additionally has weekly private medical conferences (PMC) with the crew surgeon.

Proposed:

The current health maintenance program for ISS is adequate; however the future of medical care and research in space requires a change where crew time efficiency and autonomy are emphasized. NASA's medical personnel are currently refining their ability to monitor and provide remote health care in such a manner. The proposed plan would evaluate health and fitness of the on orbit crew to; perform on orbit operations, and readiness to return to a terrestrial environment. A two tiered approach will utilize exercise and medical equipment, as well as periodic medical conferences with the flight surgeon, to provide a quantitative and clinical picture of the crew's health and fitness. Any off nominal health and fitness issues that could arise will be evaluated by providing an "armamentarium" of devices both medical and exercise specific to the on orbit crew to use.

The ability for the crew to provide autonomous health care, with decreasing earth support, will become increasingly more important for exploration missions. This new plan of health care and maintenance will allow us to, development such efforts while continuing to monitor and provide the best possible health, care and medical research through the microgravity environment on board ISS.