

**FOOD AND NUTRITION FOR THE MOON BASE: WHAT WE HAVE
LEARNED IN 45 YEARS OF SPACE FLIGHT**

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INTRODUCTION – HISTORY OF HUMAN SPACE FLIGHT – FOOD AND NUTRITION

The United States has a new human space flight mission—to return to the Moon, this time to establish an outpost to continue research there and develop our ability to send humans to Mars and bring them back in good health. The Apollo missions were the first human expeditions to the Moon. Only 2 crew members landed on the lunar surface on each Apollo mission, and they spent a maximum of 72 hours there.¹ Future trips will have at least 4 crew members, and the initial trips will include several days of surface activity. Eventually, these short (sortie) missions will extend to longer lunar surface times, on the order of weeks. Thus, the challenges of meeting the food and nutritional needs of crew members at a lunar outpost will be significantly different from those during the early Apollo missions.¹

The U.S. has had humans in space beginning in 1961 with increasing lengths of time in space flight (Table 1). Throughout these flights, the areas of particular concern for nutrition are body mass, bone health, and radiation protection. The development and refinement of the food systems over the last 30 years are discussed, as well as the plans for both the sortie and lunar

The following 2 articles briefly review what we know today about food and nutrition for space travelers and relate this knowledge to our planned human flights back to the Moon.

Table 1. Summary of the US human space flight programs.

Year	Human Space Flight Program	Flight Length
1961-1963	Mercury	15 min-34 hours
1965-1966	Gemini	5 hours-14 days
1968-1972	Apollo	5-13 days
1973-1974	Skylab Space Station	28,59, and 84 days
1981-present	Space Shuttle	4-15 days
1995-1998	Shuttle –Mir Space Station	4-6 months
2000-present	International Space Station	5-7 months

REFERENCES

1. Johnston RS, Dietlein LF, Berry CA, eds. Biomedical results of Apollo (NASA SP-368). Washington, DC: National Aeronautics and Space Administration; 1975.

Figure 1. Illustration of Lunar Base

