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SPACE MEDICINE BRANCH REPORT

Space Medicine Activities for 1990-91

The next year will be a busy and productive one in the field of space medicine, and the following brief article is a summary of some of the activities in this rapidly growing field.

The U.S. Space Program will have a number of Space Shuttle flights that will directly benefit our field of interest during 1990 and 1991. There are 10 planned Space Shuttle launches from May 1990, to May 1991, that include 4 Spacelab missions. The first dedicated life-sciences Spacelab mission is planned for August of this year with a crew of seven. The investigations are designed to provide new information concerning human adaptation to the microgravity environment. Many new experiments are also scheduled for the Extended Duration Orbiter medical program, aimed at protecting the safety and health of the crew during longer Space Shuttle missions of 16 and possibly 28 days.

Space Station Freedom has now reached the stage of preliminary design review and the construction of the first items of hardware. NASA plans to have a crew health care system in the habitation module, and to pursue a vigorous research program, the

goal of which is the certification of operational crew rotations for up to 180 days. The Station also provides a unique resource to support human exploratory missions to the Moon and Mars. Initial requirements for the exploration missions have been developed, but major questions remain as to the need for artificial gravity, radiation protection, and the safety of aerobraking profiles for deconditioned crewmembers.

In the Russian space program, a February launch sent a new crew to the Space Station MIR. Four U.S. astronauts (Brandenstein, Weitz, Ross, and Grabe) were invited to watch the launch and visit Star City. The new crew composed of Cosmonauts Solovyov and Balandin, replaced Cosmonauts Serebrov and Vidorenko who had been aloft for 6 months.

The National Space Development Agency of Japan (NASDA) is actively preparing for its first Spacelab mission on the U.S. Space Shuttle in June of 1991. Three Japanese Payload Specialists are in training for this mission, and three Japanese Flight Surgeons will be sent to the United States for training during several Space Shuttle missions. Japan

is also building one of the four modules for the Space Station Freedom; the Japanese Experiment Module (JEM).

The European Space Agency (ESA) is also developing an experiment module, Columbus, for the Space Station Freedom which will complete the initial Space Station configuration of four habitable modules. Additionally, ESA is developing its spaceplane named "Hermes" which will have the capability to carry astronauts into low Earth orbit. The Spacelab module which will be used extensively on the Space Shuttle this year was built by ESA, and the Federal Republic of Germany plans to sponsor its second Spacelab mission (D-2) in May of 1992 aboard the newest Space Shuttle, "Endeavor."

Over the next few months, I plan to use our page in the journal to bring you topics of interest in space medicine from government, industry and private perspectives, and from national and international members. I hope you will enjoy this series in Space Medicine!

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President