

RODENT BEHAVIOR AND MOBILITY
DURING ANIMAL FOLLOW-UP: NEAR SPACE FLIGHT

Robert W. Phillips*, Bonnie L. Dutton**, Gary C. Jahns**

*Code 1, NASA Headquarters, Washington DC 20546

Ph (202) 453-2961, Fax (202) 426-6111

**MS 240A-3, NASA Ames Res. Ctr., Moffett Field CA 94031

Ph (415) 604-6188, Fax (415) 604-0399

Individually housed male rodents weighing 284 ± 15 grams were flown on Space-Laboratory Life Sciences 1, in June of 1991. During the latter portion of the nine day mission a cage containing two animals was removed from the Research Animal Holding Facility, and transported to the General Purpose Work Station. Upon removal from the cage, animal behavior and handling ease were evaluated. It was clearly demonstrated that handling and behavior in space was very similar to the same activity in normal gravity. Weightlessness did elicit a startle response when the animals were floating free, but their demeanor was quiet and curious when they were restrained in the hands or could hold on to other surfaces. There was no obvious decrement in their motor skills while in space. Several hours after return to Earth video recording of the animals revealed that they had major decreases in motor function. They seemed capable of only minor or restricted movements when compared to ground controls and there were obvious muscle fasciculations. A number of the flight animals were videotaped 9 days later, a period equal to the mission length. At this time their mobility was more normal but obvious muscle fasciculations were still present. Our conclusion is that adaptation of young rats to the space environment does not have a detrimental effect on their motor skills or neuromuscular function while they remain weightless. However, the effects of space adaptation impose limits on their physical activity upon return to Earth. Further, based on the animal handling data, future missions that will require in-flight animal procedures can be confidently planned.