Body Unloading Associated with Space Flight and Bed-Rest Impacts Functional Performance

Body unloading resulting from bed-rest impacts functional performance, particularly for tasks with a greater requirement for postural equilibrium control. These results indicate that body support unloading experienced during space flight contributes to postflight changes in functional performance.

Preliminary Sensorimotor and Cardiovascular Results from the Joint Russian and U.S. Pilot Field Test with Planning for the Full Field Test Beginning with the Year Long International Space Station Mission

Sensorimotor and cardiovascular research between the U.S. and Russia will determine functional capabilities following long-duration flight. Using multiple measurements beginning at the landing site, testing will track recovery and potential programmatic risks associated with exploration missions.

Assessment of Operator Proficiency After Long Duration Spaceflight

This project compares pre- and post-flight performance on operationally relevant simulations.

The Effects of Spaceflight and a Spaceflight Analog on Neurocognitive Performance: Extent, Longevity, and Neural Bases

We are performing structural and functional magnetic resonance brain imaging to identify the relationships between changes in neurocognitive function and brain structural alterations following a six month International Space Station mission and following 70 days exposure to head down tilt bedrest.

Determination of Appropriate Physiological Measurements for Predicting EVA Task-Failure

Oxygen uptake better indicated impending task-failure during simulated EVAs than muscle oxygenation and electromyography measurements. These results suggest that real-time measurements of astronaut oxygen uptake during an EVA will allow the monitoring staff to determine the appropriate intensity.

DISCUSSION