

## Improving Astronaut Functional Mobility after Spaceflight using Sensorimotor Adaptability Training

Jacob J. Bloomberg, Ph.D.  
NASA Johnson Space Center

Exposure to the microgravity conditions of spaceflight induces adaptive central reinterpretation of sensory information. This microgravity adaptive state, however, is inappropriate for a gravitational environment so that astronauts must spend time readapting to Earth's gravity following their return from space. During this readaptation period they experience disturbances in spatial orientation, posture, gait, and gaze control. Current research in our laboratory is focused on understanding how exposure to spaceflight produces postflight disturbances in balance, gait control and functional mobility. We are also developing sensorimotor adaptability training programs designed to facilitate the rapid recovery of functional mobility after spaceflight to improve performance of astronauts after their return to Earth and during future planetary missions.