NASA Space Station Science Officer Performs 'FOOT' Work

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Expedition 11 NASA Science Officer John Phillips conducted the first session of the Foot/Ground Reaction Forces during Spaceflight, or FOOT experiment. FOOT investigates the differences between use of the body's lower extremities on Earth and in space, as well as changes in the musculoskeletal system during spaceflight. Without appropriate countermeasures, astronauts traveling in space can lose as much bone mineral in the lower part of the body in one month as a typical post-menopausal woman loses in an entire year. Muscle strength also can be lost rapidly during spaceflight.

Phillips wore a pair of customized Lycra cycling tights called the Lower Extremity Monitoring Suit, or LEMS. The instrumented suit measures Phillips' joint angles, muscle activity and forces on the feet during a typical day on the Space Station. Four of these FOOT sessions are planned for this Expedition, in addition to the measurements taken before and after the mission.

FOOT has the potential to shed new light on the reasons for bone and muscle loss during spaceflight and on the design of exercise countermeasures. This experiment also has significance for understanding, preventing and treating osteoporosis on Earth. Expedition 11 marks the third Expedition that FOOT has been performed in flight. FOOT was previously done on Expeditions 6 and 8.

Focused human physiological and biological Space Station research on astronaut health and the development of countermeasures to protect

crews from the space environment will allow for long duration missions to explore beyond low Earth orbit. NASA's payload operations team at the Marshall Center coordinates U.S. science activities on Space Station.

Source: NASA