Fiscal Year:	FY 2008	**Task Last Updated:**	FY 02/19/2009
PI Name:	Bloomberg, Jacob J. Ph.D.		
Project Title:	Physiological Factors Contributing to Postflight Changes in Functional Performance (Functional Task Test)		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Biomedical countermeasures		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	(1) **HHC**:Human Health Countermeasures		
Human Research Program Risks:	(1) **Sensorimotor**:Risk of Altered Sensorimotor/Vestibular Function Impacting Critical Mission Tasks		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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City:	Houston	**State:**	TX
Zip Code:	77058-3607	**Congressional District:**	36
Comments:			
Project Type:	FLIGHT	**Solicitation / Funding Source:**	Directed Research
Start Date:	06/19/2008	**End Date:**	09/30/2013
No. of Post Docs:		**No. of PhD Degrees:**	
No. of PhD Candidates:		**No. of Master' Degrees:**	
No. of Master's Candidates:		**No. of Bachelor's Degrees:**	
No. of Bachelor's Candidates:		**Monitoring Center:**	NASA JSC
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Flight Program:	ISS		
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Feeback, Daniel (NASA Johnson Space Center) Feiveson, Alan (NASA Johnson Space Center) Lee, Stuart (Wyle Laboratories/NASA Johnson Space Center) Mulavara, Ajitkumar (USRA) Paloski, William (NASA Johnson Space Center) Peters, Brian (Wyle Labs/NASA JSC) Platts, Steven (NASA Johnson Space Center) Reschke, Millard (NASA Johnson Space Center) Ryder, Jeffrey (USRA) Spiering, Barry (Wyle Labs/NASA Johnson Space Center) Stenger, Michael (Wyle Labs/NASA Johnson Space Center)		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	During space flight astronauts experience alterations in multiple physiological systems due to exposure to microgravity. These physiological changes include sensorimotor disturbances, cardiovascular deconditioning, loss of muscle mass and strength. These changes lead to disruption in the ability to ambulate and perform functional tasks during the initial reintroduction to a gravitational environment and may cause significant impairments in performance of operational tasks immediately following landing on a planetary surface. To date changes in functional performance that result from physiological changes have not been systematically documented. The objectives of this proposal are: 1) develop and validate a set of functional tests that are representative of critical mission tasks for lunar and Mars operations; 2) identify the key underlying physiological factors that contribute to changes in performance of the functional tests. We will test astronauts on an integrated suite of functional and physiological tests before and after short and long duration space flight. This study will 1) identify the critical mission tasks that may be impacted by alterations in physiological responses; 2) map physiological changes to alterations in functional performance and 3) aid in the design countermeasures that specifically target the physiological systems responsible for impaired functional performance.
Rationale for HRP Directed Research:	This research is directed because it contains highly constrained research, which requires focused and constrained data gathering and analysis that is more appropriately obtained through a non-competitive proposal.
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2008.
Bibliography Type:	Description: (Last Updated: 05/21/2021)