Fiscal Year:	FY 2013	**Task Last Updated:**	FY 02/06/2014
PI Name:	Young, Laurence R. Sc.D.		
Project Title:	Countermeasures to Reduce Sensorimotor Impairment and Space Motion Sickness Resulting from Altered Gravity Levels		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	NSBRI--Sensorimotor Adaptation Team		
Joint Agency Name:		**TechPort:**	Yes
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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PI Organization Type:	UNIVERSITY	**Phone:**	617-253-7759
Organization Name:	Massachusetts Institute of Technology		
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City:	Cambridge	**State:**	MA
Zip Code:	02139-4301	**Congressional District:**	8
Comments:	Deceased as of August 2021.		
Project Type:	GROUND	**Solicitation / Funding Source:**	2012 Crew Health NNJ12ZSA002N
Start Date:	08/01/2013	**End Date:**	07/31/2016
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:**	NSBRI
Contact Monitor:		**Contact Phone:**	
Contact Email:			
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Merfeld, Daniel (Massachusetts Eye And Ear Infirmary) Oman, Charles (Massachusetts Institute of Technology) Karmali, Faisal (Massachusetts Eye And Ear Infirmary)		
Grant/Contract No.:	NCC 9-58-SA03401		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Adaptation to altered gravity has been of concern from the earliest reports of space motion sickness, through the Apollo exploration era, and into current planning of exploration missions. The proposed research program, to be conducted by a collaboration of highly experienced space flight investigators from MIT and the Massachusetts Eye and Ear Infirmary at Harvard, takes a new approach which could lead to an effective, practical, and acceptable protocol for pre-adapting astronauts to space flight. By using the gravitoinertial alterations possible with centrifugation in different body orientations we will quantify an individual's sensory adaptation capability and use it to predict and to minimize the consequences of movement in any other gravity environment – eventually including weightlessness. In combination with appropriate use of a drug (promethazine) we anticipate the development of a new pre-flight adaptation protocol to minimize disorientation and motion sickness and to overcome disturbances in manual control. An important step in the development will be the determination of the benefit and risks associated with the use of promethazine in conjunction with adaptation training.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2013.
Bibliography Type:	Description: (Last Updated: 02/08/2021)