Fiscal Year:	FY 2020	**Task Last Updated:**	FY 10/02/2020
PI Name:	Shelhamer, Mark Sc.D.		
Project Title:	Investigation of Partial-g Effects on Ocular Alignment		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:			
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		
PI Email:	mshelhamer@jhu.edu	**Fax:**	FY
PI Organization Type:	UNIVERSITY	**Phone:**	410-614-5898
Organization Name:	Johns Hopkins University		
PI Address 1:	Otolaryngology - Head and Neck Surgery Department		
PI Address 2:	710 Ross Bldg, 733 N. Broadway		
PI Web Page:	https://		
City:	Baltimore	**State:**	MD
Zip Code:	21205-1832	**Congressional District:**	7
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	2019 HERO 80JSC019N0001-FLAGSHIP & OMNIBUS: Human Research Program Crew Health. Appendix A&B
Start Date:	07/28/2020	**End Date:**	07/27/2022
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
Contact Monitor:	Norsk, Peter	**Contact Phone:**	
Contact Email:	Peter.norsk@nasa.gov		
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Schubert, Michael Ph.D. (Johns Hopkins University)		
Grant/Contract No.:	80NSSC20K1498		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	This project will provide information on binocular alignment as a measure of otolith asymmetry – more specifically as a measure of the neural compensation for asymmetry, which changes as a function of g level. This low-level function is easily and rapidly measured, and has been validated in vestibular patients and parabolic flight. The project draws on related Human Research Program (HRP) initiatives: Sensorimotor Assessment and Rehabilitation Apparatus (NNX10AO19G, 2010-2014) and Assessment of Otolith Function and Asymmetry as a Corollary to Critical Sensorimotor Performance in Missions of Various Durations (80NSSC19K0487, 2019-2027). Based on our previous studies, we anticipate a threshold of about 0.3 g, where there is a transition from ocular alignment that prevails in 1 g to that which is normal in 0 g (Karmali et al., J Vestibular Res 16:117-125, 2006). A subsequent model suggests a slightly higher (but not abrupt) transition at about 0.6 g (Beaton et al., Frontiers Syst Neurosci 9, 2015); thus, we predict a switching threshold in the range of 0.3 to 0.6 g.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2020.
Bibliography Type:	Description: (Last Updated: 01/17/2024)