Fiscal Year:	FY 2020	**Task Last Updated:**	FY 01/20/2021
PI Name:	Diaz Artiles, Ana Ph.D.		
Project Title:	Effects of Altered-Gravity on Perception and Bi-manual Coordination: Impacts on Functional Performance		
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		
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PI Organization Type:	UNIVERSITY	**Phone:**	617-909-0644
Organization Name:	Texas A&M University		
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City:	College Station	**State:**	TX
Zip Code:	77843-0001	**Congressional District:**	17
Comments:			
Project Type:	FLIGHT,GROUND	**Solicitation / Funding Source:**	2019 HERO 80JSC019N0001-FLAGSHIP & OMNIBUS: Human Research Program Crew Health. Appendix A&B
Start Date:	08/01/2020	**End Date:**	07/31/2021
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):	Dunbar, Bonnie Ph.D. (Texas A&M University) Kennedy, Deanna Ph.D. (Texas A&M University)		
Grant/Contract No.:	80NSSC20K1499		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Many of the activities associated with spaceflight require individuals to use both limbs simultaneously to accomplish the task. Motor control, as well as visual performance and spatial orientation are disrupted by gravitational transitions between 1 G and 0 G, but very little is known about the sensorimotor deficits between 0 G and 1 G. The objective of this analog-based research effort is to investigate the impact of partial G-levels on bimanual coordination tasks that are operationally relevant for spaceflight. The same set of human subjects will participate in two different bi-manual coordination tasks during parabolic flight, which will deliver G-levels of 0, 0.25, 0.5, 0.75, 1, and 1.8 G. Sensorimotor dose-response curves will be generated between bi-manual coordination operational variables as a function of G-level, and G-thresholds (which indicate when performance decrements occur) will be determined. We will also quantify the risk associated with the use of a common motions sickness drug (promethazine) during bimanual coordination tasks. Results will provide critical information for current and future countermeasure development and in-flight prescriptions.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2020.
Bibliography Type:	Description: (Last Updated: 07/28/2023)