

Fiscal Year:	FY 2021	Task Last Updated:	FY 12/14/2020
PI Name:	Taylor, W Robert M.D., Ph.D.		
Project Title:	Potential Role of the Endothelium in Internal Jugular Venous Thrombosis due to Abnormal Venous Flow Patterns During Spaceflight		
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) Cardiovascular: Risk of Cardiovascular Adaptations Contributing to Adverse Mission Performance and Health Outcomes		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	2019-2020 HERO 80JSC019N0001-HHCBPSR, OMNIBUS2: Human Health Countermeasures, Behavioral Performance, and Space Radiation-Appendix C; Omnibus2-Appendix D
Start Date:	11/13/2020	End Date:	11/12/2021
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
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Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):			
Grant/Contract No.:	80NSSC21K0251		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	The recent report of complete and partial thrombosis of the internal jugular vein in crew members on the International Space Station (ISS) raises concerns for the potential of life threatening pulmonary emboli. There appear to be very abnormal blood flow patterns in the internal jugular vein in zero gravity that may predispose to local thrombus formation. Given that the endothelium is uniquely sensitive to changes in the local flow/shear stress environment, the focus of this proposal is on the potential role of the endothelium in mediating localized thrombus formation. The purpose of this proposal is to identify changes in gene expression in venous endothelium exposed to the same flow patterns as those observed in the ISS crew members using isolated vein organ culture system. These studies will help us to develop a better understanding of the basic mechanisms responsible for thrombosis formation with the ultimate goal of potentially identifying biomarkers that would enable screening and risk stratification of crew members.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2021.
Bibliography Type:	Description: (Last Updated:)