PName: Scidler, Rachad D. Ph.D. Project Title: Spaceflight Effects on Neurocognitive Performance: Extent, Longeviry, and Neural Bases Division Name: Iluman Research Program/Discipline:- EnemetVabidicpline:- BenentVabidicpline: IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				
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Human Research Program Risk: INISLA:Risk of Adverse Outcomes Due to Inadequate Human Systems Integration Architecture Space Biology Element: None Space Biology Cross-Element None Space Biology Special Category: None PI Email: methaelseidler@ufi.edu Fax: FY PI Organization Type: UNVERSITY Phone: 352-94-1722 Organization Name: Liviversity of Florida Fax: FY PI Address 1: Applied Physiology & Kinesiology Fax: FI PI Address 2: FLG 142, P.O. Box 118205 Fax: FI Zip Code: State: FL State: FL Zip Code: State: FL State: FL Zip Code: State: FL Ongressional District: 3 Comments: NOTE: PI moved to University of Florida in July 2017; previous affiliation was University of Michigan. Project Type: FightGround Solicitation / Funding Source: 200 Crew Itealth NNJI0ZSA003N Start Date: 071/4/2017 End Date: 09/30/2021 No. of Pub D Candidates: 2 No. of Master' Degrees: No. of Bachelor's Candidates: None of Pub Degrees: No. of Solicitation / Funding Source: NAS ASC Contact Divers: Nos: Peter nor	Joint Agency Name:		TechPort:	No
Human Researce Program Kisses (2) Sensorimotor:Risk of Altered Sensorimotor/Vestibular Function Impacting Critical Mission Tasks Space Biology Cross-Element None Space Biology Special Category: None Space Biology Special Category: None PI Email: mebaelseidlergiunt ledu Fix: PY Dorganization Type: University of Florida Fix: PY Dorganization Type: University of Florida 522-294-1722 Organization Name: University of Florida 522-294-1722 PI Address 1: Applied Physiology & Kinesiology 1 PI Address 2: FLO 142, P.O. Box 118205 50000 PI Web Page: State: FL City: Gainesville of Slorida in July 2017; previous affiliation was University of Michigan. Project Type: FlightGround Solicitation / Funding Source: 2010 Crow Health NNIJ0Z5A003N Start Date: 07/14/2017 End Date: 09/30/2021 No. of Pab Decre: 09/30/2021 Solicitation / Sunding: Source: 2010 Crow Health NNIJ0Z5A003N Start Date: 07/14/2017 End Date: 09/30/2021 No. of Pab Decre: No. of Pab Decre: No. of Pab Decre: No. of Bachelor's Candidate:	Human Research Program Elements:	(1) HHC :Human Health Countermeasures		
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Discipline:NoteSpace Biology Special Category:NonePI Enail:mchaolesidler@inl.eduFax: FYPI Organization Type:UNIVERSITYPhone: 352-294-1722Organization Name:UNIVERSITYPhone: 352-294-1722PI Address 1:Applied Physiology & KinesiologyItaliaPI Address 2:FLG 142, P.O. Box 118205ItaliaPI Web Page:State: FLCity:GainesvilleState: FLZip Code:S2611-8205Congressional District: 3Comments:NOTE: PI moved to University of Florida in Jul 2017; previous affiliation was University of Michigan.Project Type:Fight,GroundSolicitation / Funding Source: 2010 crew Health NN10ZSA003NStart Date:0.7142017End Date: 09/30/2021No. of Phy Degrees:No. of Master' Degrees:No. of Master's Candidates:Yories/Kimana govVordates:Vordate/ Contact Phone:Contact Monitor:Norsk, PeterFight Program:Solie: Solie: Solie	Space Biology Element:	None		
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Organization NameUniversity of FloridaP1 Address 1:Applied Physiology & KinesiologyP1 Address 2:FLG 142, P.O. Box 118205P1 Web Page:City:GainesvilleCity:Gainesville2 p1 Code:32611-8205Comments:NOTE: P1 moved to University of Florida in July 2017; previous affiliation was University of Michigan.Project Type:Flight,GroundSolicitation / Funding Source:2010 Crew Health NJU10ZSA003NStart Date:07/14/2017End Date:No. of Pho Candidates:2No. of Master' Degrees:No. of Pho Candidates:2No. of Master' Degrees:No. of Bachelor's Candidates:Vonsk, PeterContact Phone:Contact Monitor:Norsk, PeterContact Phone:Flight AronganNOTE: End date changed to 9/30/2021 per D. Risin/HRP and NSSC information (Ed., 8/27/20) NOTE: Changed end date to 9/30/2021 per D. Risin/HRP and NSSC information (Ed., 8/27/20) NOTE: Changed end date to 9/30/2021 per NSSC information (Ed., 8/27/20) NOTE: Changed end date to 9/30/2021 per D. Risin/HRP and NSSC information (Ed., 8/27/20) NOTE: Changed end date to 9/30/2021 per NSSC information (Ed., 109/19)Key Personnel Changes/Previous PIState and date to 9/30/2021 per NSSC information (Ed., 8/27/20) NOTE: Changed end date to 9/30/2021 per NSSC information (Ed., 109/19)Grant/Contract No:Bloomberg, Jacob Ph.D. (NASA Johnson Space Center) Mulavara, Ajitkumar Ph.D. (Universities Space Research Association)Grant/Contract No:Bloomberg, Jacob Ph.D. (NASA Johnson Space Center) Mulavara, Ajitkumar Ph.D. (Universities Space Center) Mulava	PI Email:	rachaelseidler@ufl.edu	Fax:	FY
Pl Address 1: Applied Physiology & Kinesiology Pl Address 2: FLG 142, P.O. Box 118205 Pl Web Page: Gainesville City: Gainesville Stat: FL J2 Code: 32611-8205 Comments: NOTE: Pl moved to University of Florida in July 2017; previous affiliation was University of Michigan. Project Type: Flight Ground Solor Address 1: 9/30/2021 No. of PhD Candidates: 0/14/2017 Solor Of Solors: 3 No. of Master' Degrees: 9/30/2021 No. of Master's Candidates: No. of Master' Degrees: No. of Bachelor's Candidates: Monitoring Center: NASA JSC Contact Monitor: Norsk, Peter Contact Monitor: Norsk, Peter Contact Email: Peter norsk/@inasa.gov Flight Program: VOTE: End date changed to 9/30/2021 per D. Risin/HRP and NSSC information (Ed., 8/27/20) Kry Personnel Changes/Previous PI Solor Phyle: Cuniversities Space Research Association) Go Name (Institution): Bloomberg, Jacob Ph.D. (NASA Johnson Space Center) Mulavara, Ajitkumar Ph.D. (Universities Space Research Association) Solor Sciation (Ed. Sciation (Ed. Sciation (Ed. Sciation (Ed.	PI Organization Type:	UNIVERSITY	Phone:	352-294-1722
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COI Name (Institution): Bloomberg, Jacob Ph.D. (NASA Johnson Space Center) Mulavara, Ajitkumar Ph.D. (Universities Space Research Association) Grant/Contract No.: 80NSSC17K0461 Performance Goal No.: 1	Key Personnel Changes/Previous PI:			
Performance Goal No.:	COI Name (Institution):			
	Grant/Contract No.:	80NSSC17K0461		
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Task Description:	NOTE: Continuation of "Spaceflight Effects on Neurocognitive Performance: Extent, Longevity, and Neural Bases," grant NNX11AR02G, due to Principal Investigator Seidler's move to University of Florida from University of Michigan. NASA Research Announcement NNJ10ZSA003N requested proposals to assess changes in elemental neurocognitive functions such as perception, motor control, memory, attention, language, executive function, and emotional processing following long duration spaceflight using both behavioral assessments and monitoring technologies such as fMRI. In response to this call, we propose to perform structural and functional MR brain imaging to identify the relationship between changes in crewmember neurocognitive function and neural structural alterations following a six month International Space Station mission. Our central hypothesis is that measures of brain structure, function, and network integrity will change from pre to post flight in crewmembers (Aim 1). Moreover, we predict that these changes will correlate with indices of cognitive, sensory, and motor function in a neuroanatomically selective fashion (Aim 2). Our interdisciplinary approach utilizes cutting edge neuroimaging techniques and a broad ranging battery of sensory, motor, and cognitive assessments that will be conducted pre flight, during flight, and post flight to investigate neuroplastic and maladaptive brain changes in crewmembers following long duration spaceflight-induced changes in behavior, and 2) identify whether a return to normative behavioral function following re-adaptation to Earth's gravitational environment is associated with a restitution of brain structure and function or instead is supported by substitution with compensatory brain processes.		
Rationale for HRP Directed Research:			
Research Impact/Earth Benefits:	The results of this project will have relevance not only to understanding the effects of spaceflight on the human brain and behavior, but also for delineating the capacity of the brain to remodel in response to adaptive stimuli. As such, the results should prove informative for understanding the neural mechanisms associated with adaptive behavioral change and the rehabilitation of these changes during recovery periods.		
Task Progress:	NRA NNJ10ZSA003N requested proposals to assess changes in elemental neurocognitive functions such as perception, motor control, memory, attention, language, executive function, and emotional processing following long duration spaceflight using both behavioral assessments and monitoring technologies such as fMRI. In response to this call, we propose to perform structural and functional MR brain imaging to identify the relationship between changes in crewmember neurocognitive function and neural structural alterations following a six month International Space Station mission. Our central hypothesis is that measures of brain structure, function, and network integrity will change from pre to post flight in crewmembers (Aim 1). Moreover, we predict that these changes will correlate with indices of cognitive, sensory, and motor function in a neuroanatomically selective fashion (Aim 2). Our interdisciplinary approach utilizes cutting edge neuroimaging techniques and a broad range of sensory, motor, and cognitive assessments that will be conducted pre flight, during flight, and post flight to investigate neuroplastic and maladaptive brain changes in crewmembers following long duration spaceflight. Success in this endeavor would 1) result in identification of the underlying neural mechanisms and operational risks of spaceflight-induced changes in behavior, and 2) identify whether a return to normative behavioral function or, instead, is supported by substitution with compensatory brain processes. We have just completed data collection for this project in May 2020, including collection of multiple types of structural and functional brain MRIs. We have also collected performance on a battery of neuropsychological tests of working memory, processing speed, and motor function, as well as assessments of balance and mobility. Data analyses and manuscript preparation are underway.		
Bibliography Type:	Description: (Last Updated: 03/18/2025)		