Task Book Report Generated on: 03/28/2024

Plostace Plostace Program Risks   Integrated Resistance and Aerobic Exercise Training With Small Compact Exercise Equipment				
Project Title: Integrated Resistance and Aerobic Exercise Training With Small Compact Exercise Equipment  Division Name: Human Research Program/Divicipline: NSBRI—Muscadoskeleial Alterations Team  Bellement-Subdiscipline: None  Human Research Program Elenets: (1) HHC:Human Health Countermaces: (2) Bone Fracture Risk of Bone Fracture due to Spaceflight-induced Changes to Bone (3) Muscle Risk of Impaired Performance Capabibities Due to Redaced Aerobic Capacity (2) Bone Fracture Risk of Bone Fracture due to Spaceflight-induced Changes to Bone (3) Muscle Risk of Impaired Performance Due to Ronecod Abusels Size, Strength and Endurance (4) Otten Risk of Dany Onset Osteoperosis Due To Spaceflight-induced Changes to Bone (3) Muscle Risk of Impaired Performance Due to Ronecod Abusels Size, Strength and Endurance (4) Otten Risk of Dany Onset Osteoperosis Due To Spaceflight-induced Changes to Bone (3) Muscle Risk of Impaired Performance Capabibities  Pl Email:  Pl Committee International Performance Capabibities  None  Pl Email:  Pl Cognization Type: University of Wichigan  Pl Address 1:  Pl Address 1:  Pl Address 1:  Pl Address 2:  School of Kinciology  Pl Web Page:  City: Ann Arbor State Mill  Altoress 2:  School of Kinciology  Pl Web Page:  City: Ann Arbor State Date: Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: Opinion of PhD Degress: 1  No. of PhD Degress: 1  No. of PhD Degress: 1  No. of Master's Candidates: On No. of Master's Degrees: 0  No. of Master's Candidates: On No. of Master's Degrees: 0  No. of Master's Candidates: On No. of Master's Degrees: 0  No. of Master's Candidates: On Monitoring Center: NSBRI  Contact Risk Human Research Association on Dilion. Edgar I The University of California, Frine)  Color	Fiscal Year:	FY 2014	Task Last Updated:	FY 10/14/2014
Bivision Name: Human Research Program/Dicipline: Program/Dicipline: Program/Dicipline- Element/Subdiscipline: NSBRI - Musculowkeletal Alterations Team    Comments	PI Name:	Ploutz-Snyder, Lori L. Ph.D.		
Program/Discipline: Program/Discipline- Element/Subdiscipline- Eleme	Project Title:	Integrated Resistance and Aerobic Exercise Training With Small Compact Exercise Equipment		
Program/Discipline-  Elements   NSBR1-Musculoskeletal Alternations Team	Division Name:	Human Research		
Elements/Subdiscipline:  Joint Agency Name:  Human Research Program Elements:  (1) Aerobic/Risk of Reduced Physical Performance Capabilities Due to Reduced Aerobic Capacity (2) Rome Fracture Risk of Reduced Physical Performance Capabilities Due to Reduced Aerobic Capacity (2) Rome Fracture Risk of Reduced Physical Performance Capabilities Due to Reduced Aerobic Capacity (2) Rome Fracture Risk of Rome Fracture due to Spaceflight and Endurance (3) Muscle Risk of Francis Companies on Rome (3) Muscle Risk of Reduced Physical Performance Date to Reduced Muscle Size, Strength and Endurance (4) Oston Risk Of Early Onset Ostooprosis Due To Spaceflight  None  Space Biology Cross-Element Discipline:  None  PI Email:  Programization Type:  UNIVERSITY  Phone: (734) 764-5210  Organization Type:  University of Michigan  Pi Address 1:  OBL 4170, 1402 Washington He.  Pi Address 2:  School of Kinesiology  PI Web Page:  City:  Ann Arbor  Ali 10-2013  Congressional District:  Previously at Universities Space Research Association/NASA Johnson Space Conter until July 2016.  Project Type:  GROUND  GROUND  Solicitation / Funding Source: 2011 Cress Health NNJ11ZSA002NA  Start Date:  0901/2012  End Date:  0901/2012  End Date:  0901/2012  End Date:  0901/2012  End Date:  No. of PhD Degrees:  No. of Master' Degrees:  No. of Master' Degrees:  No. of Master' Contract Phone:  Contact Email:  Flight Program:  NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10'22/14)  Key Personnel Changes/Previous PI:  Hadded, Fadia (University of California, Irvine)  Canary, Classica (University of California, Irvine)  Adars, Gragory (Libroversy of California, Irvine)  Joint, Lesting (University of California, Irvine)  Joi	Program/Discipline:	NSBRI		
Human Research Program Elements: (1) IHIC-Human Health Countermeasures  (1) Acrobic-Risk of Reshocad Physical Performance Capabilities Due to Reduced Acrobic Capacity (2) Bone Fracture-Risk of Bone Fracture due to Spacellight-induced Changes to Bone (3) Muscle-Risk of Impaired Performance Due to Reduced Muscle Size, Strought and Indurance (4) Octop Stak Of Early Once Osteoporous Due To Spacellight  Space Biology Cross-Element  None  Space Biology Special Category: None  PI Email: lorines@minich.edu Fax: PY  PI Organization Type: UNIVERSITY Phone: (734) 764-5210  Organization Type: UNIVERSITY Phone: (734) 764-5210  Organization Name: University of Michigan  ORI. 4170, 1402 Washington Hts.  PI Address 1: OBI. 4170, 1402 Washington Hts.  PI Address 2: School of Kinesiology  PI Web Page:  City: Ann Arbor State: MI  Zip Code: 48109-2013 Congressional District: 12  Comments: Previously at Universities Space Research Association/NASA Johnson Space Center until July 2016.  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNI11ZSA002NA  Start Date: 09/01/2012 End Date: 08/31/2016  No. of Pab Deardidates: 0 No. of Master' Degrees: 0  No. of Pab Candidates: 0 No. of Master' Degrees: 0  No. of Pab Candidates: 0 No. of Master' Degrees: 0  No. of Bachelor's Candidates: 0 No. of Master' Degrees: 0  No. of Bachelor's Candidates: 0 No. of Bachelor's Degrees: 0  No. of Bachelor's Candidates: NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Elight Program:  Flight Assignment: NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  COI Name (Institution): Sott, Lesica (University of California, Irvine) Adms, Gregory (University of California, Irvine) Dillon, Edgar (University of California, Irvine) Caloroza, Vincent (University of California, Irvine) Dillon, Edgar (University of California, Irvine) Caloroza, Vincent (Universities Space Research Association) Dillon, Edgar (University of Texas Medical Branch)  Performance Goal No.	Program/Discipline Element/Subdiscipline:	NSBRIMusculoskeletal Alterations T	Ceam	
Human Research Program Risks:   Clause   Claus	Joint Agency Name:		TechPort:	No
Human Research Program Risks:  2 (2) Bone Fracture Risk of Bone Fracture due to Spaceflight-induced Changes to Bone (3) Muscles Risk of Faurity Onset Osteoporosis Due To Spaceflight (4) Osteo Risk Of Early Onset Osteoporosis Due To Spaceflight  None  Space Biology Cross-Element  None  Space Biology Cross-Element  None  None  PI Email:    Ioripe@minch.edu	<b>Human Research Program Elements:</b>	(1) <b>HHC</b> :Human Health Countermeasu	ıres	
Space Biology Cross-Element Discipline:  None  PI Email:    Jorips@umich.edu	Human Research Program Risks:	<ul><li>(2) Bone Fracture: Risk of Bone Fracture due to Spaceflight-induced Changes to Bone</li><li>(3) Muscle: Risk of Impaired Performance Due to Reduced Muscle Size, Strength and Endurance</li></ul>		
Space Biology Special Category: None  PI Email: Iorins@aumich.edu Fax: FY  PI Organization Type: UNIVERSITY Phone: (734) 764-5210  Organization Name: University of Michigan  PI Address 1: OBL 4170, 1402 Washington Hts.  PI Address 2: School of Kinesiology  PI Web Page:  City: Ann Arbor State: MI  Zip Code: 48109-2013 Congressional District: 12  Comments: Previously at Universities Space Research Association/NASA Johnson Space Center until July 2016.  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 09/01/2012 End Date: 08/31/2016  No. of Post Docs: 0 No. of FhD Degrees: 1  No. of PhD Candidates: 1 No. of Master' Degrees: 0  No. of Bachelor's Candidates: 0 No. of Bachelor's Degrees: 0  No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI  Contact Email:  Flight Program:  NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Key Personnel Changes/Previous PI:  Key Personnel Changes/Previous PI:  Aladdad, Fadia (University of California, Irvine) Adams, Gregory (University of California, Irvine)  Adams, Gregory (University of California, Irvine)  Adams, Gregory (University Space Research Association)  Sont, Jessie (University of Texas Medical Branch)  Performance Goal No.:	Space Biology Element:	None		
PI Email: Jorips@amich.edu Fax: FY PI Organization Type: UNIVERSITY Phone: (734) 764-5210 Organization Name: University of Michigan PI Address 1: OBL 4170, 1402 Washington Hts. PI Address 2: School of Kinesiology PI Web Page: City: Ann Arbor State: MI Zip Code: 48109-2013 Congressional District: 12 Comments: Previously at Universities Space Research Association/NASA Johnson Space Center until July 2016. Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA Start Date: 09/01/2012 End Date: 08/31/2016 No. of Post Docs: 0 No. of PhD Degrees: 1 No. of PhD Candidates: 1 No. of Master's Degrees: 0 No. of Master's Candidates: 0 No. of Bachelor's Degrees: 0 No. of Bachelor's Candidates: 0 No. of Bachelor's Degrees: 0 No. of Bachelor's Candidates: No. of Master's Candidates: No. of M	Space Biology Cross-Element Discipline:	None		
PI Organization Type: UNIVERSITY Phone: (734) 764-5210  Organization Name: University of Michigan  PI Address 1: OBL 4170, 1402 Washington Hts.  PI Address 2: School of Kinesiology  PI Web Page:  City: Ann Arbor State: MI  Zip Code: 48109-2013 Congressional District: 12  Comments: Proviously at Universities Space Research Association/NASA Johnson Space Center until July 2016.  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 09:01/2012 End Date: 08/31/2016  No. of PhD Degrees: 1  No. of PhD Candidates: 1 No. of PhD Candidates: 1 No. of Master' Degrees: 0 No. of Bachelor's Candidates: 0 No. of Bachelor's Candidates: 0 No. of Bachelor's Candidates: Contact Monitor: Contact Email: Flight Program:  Flight Assignment: NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Haddad, Fadia (University of California, Irvine) Adams, Gregory (University of Texas Medical Branch)  Grant/Contract No.: NCC 9-58-MA02801  Performance Goal No.:	Space Biology Special Category:	None		
Organization Name: University of Michigan PI Address 1: OBL 4170, 1402 Washington Hts. PI Address 2: School of Kinesiology PI Web Page:  City: Ann Arbor State: MI  Zip Code: 48109-2013 Congressional District: 12  Comments: Previously at Universities Space Research Association/NASA Johnson Space Center until July 2016.  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 09/01/2012 End Date: 08/31/2016 No. of PhD Degrees: 1  No. of PhD Candidates: 0 No. of PhD Degrees: 1  No. of Master's Candidates: 0 No. of Master' Degrees: 0 No. of Master's Candidates: 0 No. of Bachelor's Degrees: 0 No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI  Contact Monitor: Contact Email: Flight Program:  Flight Assignment: NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Key Personnel Changes/Previous PI:  COI Name (Institution): Redgar (University of California, Irvine) Adams, Gregory (University of California, Irvine) Adams, Gregory (University of California, Irvine) Ryder, Jeffrey (University of Education) Dillon, Edgar (The University of Texas Medical Branch)  Grant/Contract No.: NCC 9-58-MA02801	PI Email:	lorips@umich.edu	Fax:	FY
PI Address 1: OBL 4170, 1402 Washington Hts.  PI Address 2: School of Kinesiology  PI Web Page:  City: Ann Arbor State: MI  Zip Code: 48109-2013 Congressional District: 12  Comments: Previously at Universities Space Research Association/NASA Johnson Space Center until July 2016.  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 09/01/2012 End Date: 08/31/2016  No. of Post Docs: 0 No. of PhD Degrees: 1  No. of PhD Candidates: 1 No. of Master' Degrees: 0  No. of Master's Candidates: 0 No. of Bachelor's Degrees: 0  No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Key Personnel Changes/Previous PI:  COI Name (Institution): Haddad, Fadia (University of California, Irvine) Caiozzo, Vincent (University of California, Irvine) Nyder, Jesficy (Universities Space Research Association) Scott, Jessica (Universities Space Research Association) Dillon, Edgar (The University of Texas Medical Branch)  Performance Goal No.:	PI Organization Type:	UNIVERSITY	Phone:	(734) 764-5210
PI Address 2: School of Kinesiology PI Web Page:  City: Ann Arbor State: MI  Zip Code: 48109-2013 Congressional District: 12  Comments: Previously at Universities Space Research Association/NASA Johnson Space Center until July 2016.  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 09/01/2012 End Date: 08/31/2016  No. of Post Docs: 0 No. of PhD Degrees: 1  No. of PhD Candidates: 1 No. of Master' Degrees: 0  No. of Master's Candidates: 0 No. of Bachelor's Degrees: 0  No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Key Personnel Changes/Previous PI:  Haddad, Fadia (University of California, Irvine)  Caiozzo, Vincent (University of California, Irvine)  Adams, Gregory (Universities Space Research Association)  Dillon, Edgar (The University of Texas Medical Branch)  Grant/Contract No.: NCC 9-58-MA02801	Organization Name:	University of Michigan		
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No. of Master's Candidates:  No. of Bachelor's Degrees:  No. of Bachelor's Candidates:  O Monitoring Center: NSBRI  Contact Monitor:  Contact Phone:  Contact Email:  Flight Program:  Flight Assignment:  NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Key Personnel Changes/Previous PI:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Adams, Gregory (University of California, Irvine)  Ryder, Jeffrey (Universities Space Research Association)  Dillon, Edgar (The University of Texas Medical Branch)  Grant/Contract No.:  NCC 9-58-MA02801  Performance Goal No.:	No. of Post Docs:	0	No. of PhD Degrees:	1
No. of Bachelor's Candidates:  Contact Monitor:  Contact Phone:  Contact Phone:  Contact Email:  Flight Program:  Flight Assignment:  NOTE: End date changed to 8/31/2016 per October 2014 NSBRI report submission (Ed., 10/22/14)  Key Personnel Changes/Previous PI:  Col Name (Institution):  Haddad, Fadia (University of California, Irvine) Caiozzo, Vincent (University of California, Irvine) Ryder, Jeffrey (Universities Space Research Association) Scott, Jessica (Universities Space Research Association) Dillon, Edgar (The University of Texas Medical Branch)  Performance Goal No.:	No. of PhD Candidates:	1	No. of Master' Degrees:	0
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Key Personnel Changes/Previous PI:  Haddad, Fadia (University of California, Irvine) Caiozzo, Vincent (University of California, Irvine) Adams, Gregory (University of California, Irvine) Ryder, Jeffrey (Universities Space Research Association) Scott, Jessica (Universities Space Research Association) Dillon, Edgar (The University of Texas Medical Branch)  Grant/Contract No.:  NCC 9-58-MA02801  Performance Goal No.:	Flight Program:			
Haddad, Fadia (University of California, Irvine) Caiozzo, Vincent (University of California, Irvine) Adams, Gregory (University of California, Irvine) Ryder, Jeffrey (Universities Space Research Association) Scott, Jessica (Universities Space Research Association) Dillon, Edgar (The University of Texas Medical Branch)  Grant/Contract No.:  NCC 9-58-MA02801  Performance Goal No.:	Flight Assignment:	NOTE: End date changed to 8/31/2016	per October 2014 NSBRI report subn	nission (Ed., 10/22/14)
Caiozzo, Vincent (University of California, Irvine) Adams, Gregory (University of California, Irvine) Ryder, Jeffrey (Universities Space Research Association) Scott, Jessica (Universities Space Research Association) Dillon, Edgar (The University of Texas Medical Branch)  Grant/Contract No.:  NCC 9-58-MA02801  Performance Goal No.:	Key Personnel Changes/Previous PI:			
Performance Goal No.:	COI Name (Institution):	Caiozzo, Vincent (University of Cali Adams, Gregory (University of Calif Ryder, Jeffrey (Universities Space R Scott, Jessica (Universities Space Re	fornia, Irvine ) Fornia, Irvine ) esearch Association ) search Association )	
	Grant/Contract No.:	NCC 9-58-MA02801		
Performance Goal Text:	Performance Goal No.:			
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Task Book Report Generated on: 03/28/2024

This proposal aims to validate in an analog setting a small compact exercise device for the protection of cardiovascular, muscle, and bone health. This study leverages both currently funded NSRBRI and NASA work to bring together for the first time, a promising new exercise device and exercise prescription thus placing this study at a high countermeasure readiness level (moving from 6-7). More specifically, the NSBRI funded M-MED device uses a flywheel to provide loading for either high force-low repetition resistance exercise or low force-high repetition, endurance exercise (rowing). Recent data support M-MED training effectiveness in both ambulatory subjects and over 10 days of muscle unloading **Task Description:** using unilateral lower limb suspension model. Accordingly, a new NASA funded exercise prescription study integrating resistance and aerobic training (iRAT) has been effective in the preservation of muscle and cardiovascular function over 14 days of bedrest, but requires the use of 5 different exercise machines. This proposal will combine the M-MED exercise device and the iRAT exercise prescription into a 70 day bedrest study. Outcome measurements related to cardiovascular, muscle, and bone health will be obtained and integrated to assess countermeasure effectiveness. Rationale for HRP Directed Research: Research Impact: The comparison of a single exercise device to an International Space Station-like suite of exercise devices will inform long duration exploration exercise hardware requirements as well as provide a proof of concept of an exercise efficacy using a single device. Earth Benefits: Developing the most efficient exercise prescription is valuable to a wide population who seek to optimize Research Impact/Earth Benefits: the health benefits of exercise using as little time as possible. The validation of novel compact exercise hardware may also be useful for other situation where space constraints limit the availability of large scale exercise equipment. The comparison groups consisting of 70 day bed rest subjects who perform no exercise (n=8) and perform traditional exercise matched to that performed on the International Space Station (n=8) are completed. The group funded by this proposal consists of n=8 subjects who will perform the same exercise prescription using small compact exercise Task Progress: equipment consisting of rowing and resistance exercise is about half way complete. The final data collection is expected in December 2014. Description: (Last Updated: 04/29/2023) **Bibliography Type:**