Task Book Report Generated on: 04/25/2024

Fixed   Verir   Hirgens   Alia R. Pa. D.				
Project Title:         Spinal Structure and Function after 90 Days Long-Duration Simulated Space Flight and Recovery           Division Name:         Human Research           Program/Discipline:         HUMAN RESEARCH—Biomedical countermassure:           Joint Agency Name:         Tech Port:         No           Human Research Program Risks:         (1) HBCH Joman Health Countermeasure:         No           Space Biology Florenam:         None         Space Biology Florenam:           Space Biology Forenam Risks:         None         Pass: PY           PI Emmil:         Almaconificial solution         Fax: PY           Pictorial Type:         UNIVERSITY         Phone:         SS8-54-7837           Pi Address:         19 Address:         Phone:         SS8-54-7837           Pi Address:         29 25 Addical Center Drive/0863         State:         CA           Pi Address:         29 25 Addical Center Drive/0863         Congressional District:         52           Pi Address:         29 25 Addical Center Drive/0863         Congressional District:         52           Project Type:         GROUD         Solicitation Funding 2013 HERO NN1132SA002N-Crew Health and Project Project:         52           Surf Pota Does:         No. of Phot Does:         No. of Phot Does:         No. of Master's Degrees: <t< td=""><td>Fiscal Year:</td><td colspan="3">FY 2015 Task Last Updated: FY 04/26/2016</td></t<>	Fiscal Year:	FY 2015 Task Last Updated: FY 04/26/2016		
Division Name:   Human Research   Program/Discipline:   Program/Discipline:   IUMAN RESEARCH-Biomedical countermeasures   IUMAN RESEARCH Program Risks:   CI   Bine Fireture Risk of Rone Fracture due to Spaceflight-induced Changes to Bone (2) Outer-Risk Of Farly Onset Ostcoperosis Due To Spaceflight   IUMAN RESEARCH Program Risks:   CI   Outer-Risk Of Farly Onset Ostcoperosis Due To Spaceflight   IUMAN RESEARCH Program Risks:   CI   Outer-Risk Of Farly Onset Ostcoperosis Due To Spaceflight   IUMAN RESEARCH Program Risks:   CI   Outer-Risk Of Farly Onset Ostcoperosis Due To Spaceflight   IUMAN RESEARCH Program Risks:   CI   Outer-Risk Of Farly Onset Ostcoperosis Due To Spaceflight   Farl FV   IUMAN RESEARCH Program Risks:   IUMAN RESEARCH Program Risks:   Farl FV   IUMAN RESEARCH Program Risks:   IUMAN RESEARCH P	PI Name:	Hargens, Alan R. Ph.D.		
Program/Discipline: Program/Discipline- Element/Sundiscipline- Element/Sundiscipline- Element/Sundiscipline- Element/Sundiscipline- Joint Agency Name:  Joint Agency Name:  JOHACHUMAN RESEARCII-Biomedical countermeasures  Human Research Program Elements:  (J) Hun-Eluman Health Countermeasures  Human Research Program Risks:  (J) Bone Fracture-Risk of Bone Enclure due to Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes to Bone (Z) Outco Risk Of Early Onse Osteoporosis Due To Spaceflight-induced Changes Induced Changes Ind	Project Title:	Spinal Structure and Function after 90 Days Long-Duration Simulated Space Flight and Recovery		
Program/Discipline-  Element/Subdiscipline-  HUMAN RESEARCH-Biomedical countermeasures   No.	Division Name:	Human Research		
Flement/Shothiscipline:  Joint Agency Name:  Joint Agency Name:  Joint Agency Name:  (I) HUIC-Human Health Countermeasures  Human Research Program Risks:  (I) Hone Fracture-Risk of Bone Fincture due to Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteo. Risk of Farly Onset Osteoprorsis Due To Spaceflight-induced Changes to Bone (2) Osteoprorsis Due To Spaceflight Induced Changes to Bone (2) Osteoprorsis Due To Spaceflight Induced Changes to Bone (2) Osteoprorsis Due To Spaceflight Induced Changes to Bone (2) Osteoprorsis Due To Spaceflight Induced Changes to Bone (2) O	Program/Discipline:			
Human Research Program Elements: (1) HHC-Human Health Countermeasures  Human Research Program Rislas: (1) Bone Fracture-Risk of Bone Fracture due to Spaceflight-induced Changes to Bone Colortee-Risk of Early Onset Osteoprossis Due To Spaceflight  None  Space Biology Cross-Element: None  Space Biology Special Category: None  PI Email: abaroens@need.edu Fax: FY  PI Organization Type: UNIVERSITY Phone: 858-534-7837  Organization Type: University of California, San Diego  PI Address 1; Alman Clinical and Translational Research Institute  PI Address 2: 9452 Medical Center Drive/0863  PI Web Page:  Clity: La Jolla State: CA  Zip Code: 92037-0863 Congressional District: 52  Commetts:  Project Type: GROUND Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI))  Start Date: 0801/2014 End Date: 0731/2017  No. of Phot Deandidates: No. of Past-befor's Degrees:  No. of Master's Candidates: No. of Master's University of Candidates: No. of Bachelor's Degrees:  No. of Bachelor's Candidates: No. of Bachelor's Degrees:  No. of Bachelor's Candidates: Contact Phone:  Contact Email: Peder norskifmass.eov  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution): Section And Ph.D. University of California at San Francisco )  Lozz, Jeffrey Ph.D. (University of California at San Francisco)  Lozz, Jeffrey Ph.D. (University of California at San Francisco)  Lozz, Jeffrey Ph.D. (University of California at San Francisco)  Massuda, Kockich M.D. (University of California at San Francisco)  Massuda, Kockich M.D. (University of California at San Francisco)  Massuda, Kockich M.D. (University of California at San Francisco)  Massuda, Kockich M.D. (University of California at San Francisco)  Massuda, Kockich M.D. (University of California at San Francisco)  Massuda, Kockich M.D. (University of California at San Francisco)		HUMAN RESEARCHBiomedical cou	intermeasures	
Human Research Program Risks:  (1) Bane Fracture-Risk of Bone Fracture due to Spaceflight-induced Changes to Bone (2) Oxtor.Risk Of Early Onset Osteoporosis Due To Spaceflight  Space Biology Cross-Element  None  Space Rislogy Special Category:  None  PI Email:  abargens@nesd.edu  PI Organization Type:  UNIVERSITY  Phone:  858-534-7837  Organization Name:  University of California, San Diego  PI Address 1:  Altman Clinical and Translational Research Institute  PI Address 2:  9452 Medical Center Drive/0863  PI Web Page:  City:  La Jolla  State: CA  29037-0863  Congressional District:  Comments:  Project Type:  GROUND  Solicitation / Funding 2013 HERO NNI13ZSA002N-Crew Health Source: (ELAGSHIP & NSBRI)  Start Date:  No. of Post Does:  1 No. of Phot Degrees:  No. of Master's Candidates:  No. of Bachelor's Candidates:  No. of Bachelor's Candidates:  No. of Master's Candidates:	Joint Agency Name:		TechPort:	No
Space Biology Element: None None None Space Biology Cross-Element Discipline: None Space Biology Cross-Element Discipline: None Space Biology Special Category: None Space Spa	<b>Human Research Program Elements:</b>	(1) <b>HHC</b> :Human Health Countermeasure	es	
Space Biology Cross-Element Discipline:         None           Space Biology Special Category:         None           PI Email:         abargens@used.edu         Fax:         FY           PI Organization Type:         UNIVERSITY         Phone:         858-534-7837           Organization Name:         University of California, San Diego           PI Address 1:         Altman Clinical and Translational Research Institute           PI Address 2:         9452 Medical Center Drive/0863           PI Web Page:         CA           City:         La Jolla         State:         CA           Zip Code:         92037-0863         Congressional District:         52           Comments:         Project Type:         GROUND         Solicitation / Funding Panding 2013 HERO NUJI3ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)           Start Date:         0801/2014         End Date: 07/31/2017           No. of Pst Docs:         1         No. of PhD Degrees:           No. of Pst Docs:         1         No. of Bachelor's Degrees:           No. of Bachelor's Candidates:         No. of Bachelor's Degrees:           No. of Bachelor's Candidates:         Nos. of PhD Candidates:         Peter norsk@nass.eov           Flight Program:         Peter norsk@nass.eov           Flight Assignment:	Human Research Program Risks:			
Discipline:   None   None   Space Biology Special Category:   None   Fax: FY	Space Biology Element:	None		
PI Email: alargens@uced.edu Fax: FY Pl Organization Type: UNIVERSITY Phone: 858-534-7837  Organization Name: University of California, San Diego  PI Address 1: Altman Clinical and Translational Research Institute  PI Address 2: 9452 Medical Center Drive/0863  PI Web Page:  City: La Jolla State: CA  Zip Code: 92037-0863 Congressional District: 52  Comments:  Project Type: GROUND Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 No. of Master' Degrees:  No. of Master's Candidates: No. of Master' Degrees:  No. of Master's Candidates: No. of Master' Degrees:  No. of Bachelor's Candidates: 2 Monitoring Center: NASA JSC  Contact Monitor: Norsk, Peter Contact Phone:  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  Ferguson, Adam Ph.D. (University of California at San Francisco) Macias, Brandon (NASA-JSC)  Macias, Brandon (NASA-JSC)  Macias, Brandon (NASA-JSC)  Mant/Contract No.:  NNX14AP25G		None		
Pl Organization Type: UNIVERSITY Phone: 858-534-7837  Organization Name: University of California, San Diego  Pl Address 1: Altman Clinical and Translational Research Institute  Pl Address 2: 9452 Medical Center Drive/0863  Pl Web Page:  City: La Jolla State: CA  Zip Code: 92037-0863 Congressional District: 52  Comments:  Project Type: GROUND Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Does: 1 No. of PhD Degrees:  No. of PhD Candidates: No. of Master' Degrees:  No. of Master's Candidates: No. of Master' Degrees:  No. of Bachelor's Candidates: No. of Bachelor's Degrees:  No. of Bachelor's Candidates: 2 Monitoring Center: NASA JSC  Contact Monitor: Norsk, Peter Contact Phone:  Contact Email: Peter norsk@nassa.gov  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution): Segment Ph.D. (University of California at San Francisco) Massuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No: NNX14AP25G  Performance Goal No.:	Space Biology Special Category:	None		
Organization Name: University of California, San Diego PI Address 1: Altman Clinical and Translational Research Institute PI Address 2: 9452 Medical Center Drive/0863 PI Web Page: City: La Jolla State: CA Zip Code: 92037-0863 Congressional District: 52 Comments: Project Type: GROUND Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)) Start Date: 08/01/2014 End Date: 07/31/2017 No. of Post Does: 1 No. of PhD Degrees: No. of PhD Candidates: No. of Master' Degrees: No. of Master's Candidates: No. of Master' Degrees: No. of Bachelor's Candidates: No. of Bachelor's Degrees: No. of Bachelor's Candidates: No. of Master' Degrees: No. of Bachelor's Candidates: Norsk, Peter Contact Phone: Contact Monitor: Norsk, Peter Contact Phone: Contact Email: Peter.norski@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Series and Ph.D. (University of California at San Francisco ) Masuda, Koichi M.D. (University of California at San Diego ) Masuda, Koichi M.D. (University of California at San Diego )	PI Email:	ahargens@ucsd.edu	Fax:	FY
PI Address 1: Altman Clinical and Translational Research Institute  PI Address 2: 9452 Medical Center Drive/0863  PI Web Page:  City: La Jolla State: CA  Zip Code: 92037-0863 Congressional District: 52  Comments:  Project Type: GROUND Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 No. of Master' Degrees:  No. of PAD Candidates: No. of Master' Degrees:  No. of Master's Candidates: No. of Master' Degrees:  No. of Bachelor's Candidates: 2 No. of Bachelor's Degrees:  No. of Bachelor's Candidates: 2 No. of Bachelor's Degrees:  Fight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution): Ferguson, Adam Ph.D. (University of California at San Francisco )  Lotz, Jeffrey Ph.D. (University of California at San Diego)  Grant/Contract No.: NNX14AP25G  Performance Goal No.:	PI Organization Type:	UNIVERSITY	Phone:	858-534-7837
PI Address 2: 9452 Medical Center Drive/0863  PI Web Page:  City: La Jolla State: CA  Zip Code: 92037-0863 Congressional District: 52  Comments:  Project Type: GROUND Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 No. of PhD Degrees: No. of Master's Candidates: No. of Master' Degrees: No. of Master's Candidates: No. of Bachelor's Degrees: No. of Bachelor's Candidates: 2 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): Ferguson, Adam Ph.D. (University of California at San Francisco) Lotz, Jeffrey Ph.D. (University of California at San Francisco) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.: NNX14AP25G  Performance Goal No.:	Organization Name:	University of California, San Diego		
PI Web Page:  City: La Jolla State: CA  Zip Code: 92037-0863 Congressional District: 52  Comments:  Project Type: GROUND Solicitation / Funding Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 No. of PhD Degrees: No. of PhD Candidates: No. of Master' Degrees: No. of Master's Candidates: No. of Bachelor's Degrees: No. of Master's Candidates: 2 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): Ferguson, Adam Ph.D. (University of California at San Francisco) Lotz, Jeffrey Ph.D. (University of California at San Francisco) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.: NNX14AP25G	PI Address 1:	Altman Clinical and Translational Research Institute		
City: La Jolla State: CA  Zip Code: 92037-0863 Congressional District: 52  Comments:  Project Type: GROUND Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 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: No. of Bachelor's Degrees: No. of Bachelor's Candidates: Contact Monitor: Norsk, Peter Contact Phone:  Contact Monitor: Norsk Peter Norsk@nasa.gov  Flight Program: Flight Assignment: Key Personnel Changes/Previous PI:  COI Name (Institution): Ferguson, Adam Ph.D. (University of California at San Francisco ) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.: NNX14AP25G	PI Address 2:	9452 Medical Center Drive/0863		
Zip Code: 92037-0863 Congressional District: 52  Comments:  Project Type: GROUND Solicitation / Funding Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 No. of PhD Degrees: No. of PhD Candidates: No. of Master' Degrees: No. of Master's Candidates: No. of Bachelor's Degrees: No. of Master's Candidates: 2 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): Ferguson, Adam Ph.D. (University of California at San Francisco) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.: NNX14AP25G  Performance Goal No.:	PI Web Page:			
Comments:  Project Type:  GROUND  Solicitation / Funding Source: (FLAGSHIP & NSBRI)  Start Date:  08/01/2014  End Date: 07/31/2017  No. of Post Docs:  1 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:  2 Monitoring Center: NASA JSC  Contact Monitor:  Norsk, Peter  Contact Email:  Peter.norsk@nasa.gov  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco)  Lotz, Jeffrey Ph.D. (University of California at San Diego)  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	City:	La Jolla	State:	CA
Project Type:  GROUND  Solicitation / Funding 2013 HERO NNJ13ZSA002N-Crew Health Source: (FLAGSHIP & NSBRI)  Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 No. of PhD Degrees:  No. of PhD Candidates: No. of Master' Degrees:  No. of Master's Candidates: No. of Master' Degrees:  No. of Master's Candidates: 2 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): Ferguson, Adam Ph.D. ( University of California at San Francisco )	Zip Code:	92037-0863	<b>Congressional District:</b>	52
Start Date: 08/01/2014 End Date: 07/31/2017  No. of Post Docs: 1 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: 2 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): Ferguson, Adam Ph.D. (University of California at San Francisco) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.: NNX14AP25G  Performance Goal No.:	Comments:			
No. of Post Docs:  No. of PhD Candidates:  No. of Master' Degrees:  No. of Master's Candidates:  No. of Bachelor's Degrees:  No. of Bachelor's Candidates:  No. of Bachelor's Candidates:  No. of Bachelor's Degrees:  No. of Bachelor's Candidates:  Contact Monitor:  Norsk, Peter Contact Phone:  Contact Email:  Peter.norsk@nasa.gov  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco )  Macias, Brandon (NASA-JSC)  Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	Project Type:	GROUND	Solicitation / Funding Source:	2013 HERO NNJ13ZSA002N-Crew Health (FLAGSHIP & NSBRI)
No. of PhD Candidates: No. of Master' Degrees: No. of Master's Candidates: No. of Bachelor's Degrees: No. of Bachelor's Candidates: 2 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): Ferguson, Adam Ph.D. (University of California at San Francisco) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.: NNX14AP25G  Performance Goal No.:	Start Date:	08/01/2014	End Date:	07/31/2017
No. of Master's Candidates:  No. of Bachelor's Degrees:  No. of Bachelor's Candidates:  2 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):  Ferguson, Adam Ph.D. (University of California at San Francisco) Lotz, Jeffrey Ph.D. (University of California at San Francisco) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	No. of Post Docs:	1	No. of PhD Degrees:	
No. of Bachelor's Candidates:  Contact Monitor:  Norsk, Peter  Contact Email:  Peter.norsk@nasa.gov  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco)  Lotz, Jeffrey Ph.D. (University of California at San Francisco)  Macias, Brandon (NASA-JSC)  Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	No. of PhD Candidates:		No. of Master' Degrees:	
Contact Monitor:  Norsk, Peter Contact Phone:  Contact Email:  Peter.norsk@nasa.gov  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco ) Lotz, Jeffrey Ph.D. (University of California at San Francisco ) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	No. of Master's Candidates:		No. of Bachelor's Degrees:	
Contact Email:  Peter.norsk@nasa.gov  Flight Program:  Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco ) Lotz, Jeffrey Ph.D. (University of California at San Francisco ) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	No. of Bachelor's Candidates:	2	<b>Monitoring Center:</b>	NASA JSC
Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco) Lotz, Jeffrey Ph.D. (University of California at San Francisco) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego)  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	Contact Monitor:	Norsk, Peter	<b>Contact Phone:</b>	
Flight Assignment:  Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco ) Lotz, Jeffrey Ph.D. (University of California at San Francisco ) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego )  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	Contact Email:	Peter.norsk@nasa.gov		
Key Personnel Changes/Previous PI:  COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco ) Lotz, Jeffrey Ph.D. (University of California at San Francisco ) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego )  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	Flight Program:			
COI Name (Institution):  Ferguson, Adam Ph.D. (University of California at San Francisco ) Lotz, Jeffrey Ph.D. (University of California at San Francisco ) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego )  NNX14AP25G  Performance Goal No.:	Flight Assignment:			
COI Name (Institution):  Lotz, Jeffrey Ph.D. (University of California at San Francisco ) Macias, Brandon (NASA-JSC) Masuda, Koichi M.D. (University of California at San Diego )  Grant/Contract No.:  NNX14AP25G  Performance Goal No.:	Key Personnel Changes/Previous PI:			
Performance Goal No.:	COI Name (Institution):	Lotz, Jeffrey Ph.D. (University of Calif Macias, Brandon (NASA-JSC)	fornia at San Francisco )	
	Grant/Contract No.:	NNX14AP25G		
Performance Goal Text:	Performance Goal No.:			
	Performance Goal Text:			

Task Book Report Generated on: 04/25/2024

Task Description:

The vertebral bodies and flexible intervertebral discs are important, weight-bearing tissues that have adapted to gravitational stress. Consequently, the absence of gravitational axial loads during exposure to microgravity likely disrupts normal spine physiology. Throughout longer space flight missions, deconditioning of the intervertebral discs and spinal muscles poses a serious injury risk upon re-exposure to upright posture in a gravitational environment. We will use state-of-the-art technologies to quantify morphology, biochemistry, and kinematics of spines (including the vertebrae, intervetebral discs, and spinal muscles) of rats at defined time points as described in the NASA research announcement. After successful completion of our investigation, we will deliver a comprehensive database of simulated microgravity-induced spinal adaptations (type and magnitude). The overarching goal of these proposed studies are to develop a long-duration space flight ground based model of spine function and structure. In addition, this research project will afford the opportunity to examine possible gender differences in spinal structure and function. Our research group is in a unique position to leverage our past rodent space flight experience on STS-131, STS-133, STS-135, and BION M-1 missions and directly compare to this ground based model of simulated microgravity. Moreover, we are also uniquely positioned to compare this 90-days hind-limb suspension model to those changes that occur in our currently-funded project to test crew members before and after 6-month ISS missions. Our project directly addresses Critical Path Roadmap Risks and Questions regarding disc injury (IRP Gap-B4): Is damage to joint structure, intervertebral discs, or ligaments incurred during or following microgravity exposure? Our research will improve understanding of the underlying pathophysiology of spinal deconditioning induced by simulated microgravity, and mechanisms of spinal adaptation following re-exposure to 1-G. Our long-term goal is to prevent such spinal deconditioning with exercise or other physiologic countermeasures. The goal of this research is to comprehensively characterize 90-days simulated space-flight and recovery induced changes in spinal tissue morphology, biochemistry, and biomechanics.

## Rationale for HRP Directed Research:

Research Impact/Earth Benefits:

To our knowledge, this study is the first to examine the effects of 90-days simulated space flight on spinal deconditioning in rats. The vertebral bodies and flexible intervertebral discs are important, weight-bearing tissues that have adapted to gravitational stress. Our research will aid understanding of spinal deconditioning during simulatee microgravity and of the higher incidence of disc prolapse or herniation following re-exposure to 1-G with a long-term view to prevent such spinal deconditioning with exercise or other physiologic countermeasures. This research may aid understanding of spinal deconditioning during inactivity such as after spinal cord injury and bed rest in human patients on Earth.

Task Progress:

Limited progress has been made because we are just now receiving spine samples from the Body Parts Program at UC-Davis/NASA Ames Research Center.

**Bibliography Type:** 

Description: (Last Updated: 10/31/2023)