

Fiscal Year:	FY 2013	Task Last Updated:	FY 03/11/2013
PI Name:	Paloski, William H Ph.D.		
Project Title:	Modulation of Muscle Function by Lower Limb Loading during Space Flight		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline-- Element/Subdiscipline:	HUMAN RESEARCH--Biomedical countermeasures		
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) HHC: Human Health Countermeasures		
Human Research Program Risks:	(1) Muscle: Risk of Impaired Performance Due to Reduced Muscle Size, Strength and Endurance		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Organization Name:	University of Houston		
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PI Web Page:			
City:	Houston	State:	TX
Zip Code:	77204-6015	Congressional District:	18
Comments:	PI moved to University of Houston in September 2008, from NASA JSC.		
Project Type:	FLIGHT	Solicitation / Funding Source:	2010 Crew Health NNJ10ZSA003N
Start Date:	02/01/2012	End Date:	01/31/2013
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:	Loerch, Linda	Contact Phone:	
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Flight Program:	ISS		
Flight Assignment:	ISS		
Key Personnel Changes/Previous PI:	NOTE: PI change to Dr. Mitzi Laughlin in February 2013, result of PI Paloski's assignment to Human Research Program at JSC (Ed., 3/11/2013)		
COI Name (Institution):	Clarke, Mark (University of Houston) Layne, Chuck (University of Houston) O'Connor, Dan (University of Houston) Thrasher, Timothy (University of Houston)		
Grant/Contract No.:	NNX12AF04G		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Muscle size, structure, and coordination changes during spaceflight are likely triggered by absent or reduced loading of receptors in the soles of the feet and the muscles and joints of the lower limbs. To better understand the physiological bases of these adaptive responses, we propose to examine, in-flight, the relationships between lower limb loading and muscle activation, and control. The proposed experiments will study astronaut volunteers before flight and on multiple occasions during flight using the MARES device to provide loading to the feet and legs as well as device that can apply pressure to the soles of the feet. The effects on muscle activation and performance associated with foot pressure alone or foot pressure plus lower limb loading will be investigated. If successful this investigation will provide new insight into the role of lower extremity load receptors in modulating muscle function and new evidence regarding the potential for a passive loading countermeasure to attenuate the undesirable side effects of space flight on muscle function.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	NOTE: Change in PI to Dr. Mitzi Laughlin in February 2013, result of PI Paloski's assignment to Human Research Program at JSC. See Laughlin for subsequent reporting (Ed., 3/11/2013)
Bibliography Type:	Description: (Last Updated: 02/09/2021)