Fiscal Year:	FY 2012	**Task Last Updated:**	FY 03/27/2012
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		
PI Email:	whpaloski@uh.edu	**Fax:**	FY
PI Organization Type:	UNIVERSITY	**Phone:**	(713) 743-9272
Organization Name:	University of Houston		
PI Address 1:	Health & Human Performance		
PI Address 2:	3855 Holman St, Garrison 104		
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:	Norsk, Peter	**Contact Phone:**	
Contact Email:	Peter.norsk@nasa.gov		
Flight Program:	ISS		
Flight Assignment:	ISS		
Key Personnel Changes/Previous PI:			
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:	New project for FY2012.
Bibliography Type:	Description: (Last Updated: 02/09/2021)