Fiscal Year: FY 2023 Task Last Updated: FY 06/13/2023 P1 Name: Allaway, Heather Ph.D. Insights Into the Impacts of Continuous, Low Dose-Rate Neutron Radiation Exposure on Maternal Physiology Division Name: Space Biology Program/Discipline: Program/Discipline Element/Subdiscipline: Image State	l and Fetal Skeletal
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No. of PhD Candidates: No. of Master' Degrees:	
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Contact Monitor: Griko, Yuri Contact Phone: 650-604-0519	
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Flight Program:	
Flight Assignment:	
Key Personnel Changes/Previous PI:	
COI Name (Institution): Lau, Anthony Ph.D. (College of New Jersey)	
Grant/Contract No.: 80NSSC23K0784	
Performance Goal No.:	
Performance Goal Text:	
Task Description:The combined effects of space environmental stressors induce pathologies in multiple organ system to the musculoskeletal system may be very dangerous for the health and performance of astronauts missions on the Moon or arriving on Mars. A critical need remains to better understand the impact one of the key environmental stressors of deep space, on human and animal physiology to enable en missions beyond low Earth orbit or setting up settlements on the Moon or Mars. There is a critical surrounding the impact of the space radiation environment on skeletal health and on the progress of development during pregnancy. The objective of the current proposal is to capitalize on a unique tis opportunity to examine the combined effects of continuous radiation exposure and pregnancy on m skeletal physiology. We propose to assess maternal and fetal skeletal physiology through measurem	s on extended duration t of radiation exposure, extended duration gap in knowledge of fetal skeletal issue-sharing naternal and fetal

	material properties, as well as assess changes in cellular dynamics of the maternal bone under the microscope. This study will be critical in assessing how a very harmful component of the space radiation environment impacts multiple aspects of skeletal health, including sex-specific differences and individual variation in the impact of the space environment on the functioning of the body.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2023.
Bibliography Type:	Description: (Last Updated: 07/30/2024)