

| | | | |
|---|---|---------------------------------------|----------------------------------|
| Fiscal Year: | FY 2016 | Task Last Updated: | FY 03/23/2016 |
| PI Name: | Rianon, Nahid M.D. | | |
| Project Title: | Effects of Angiotensin Converting Enzyme Inhibitors (ACEI) on Bone Turnover | | |
| 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) Bone Fracture: Risk of Bone Fracture due to Spaceflight-induced Changes to Bone (2) Osteo: Risk Of Early Onset Osteoporosis Due To Spaceflight | | |
| Space Biology Element: | None | | |
| Space Biology Cross-Element Discipline: | None | | |
| Space Biology Special Category: | None | | |
| PI Email: | Nahid.J.Rianon@uth.tmc.edu | Fax: | FY |
| PI Organization Type: | UNIVERSITY | Phone: | 832-878-0614 |
| Organization Name: | University of Texas Houston Health Science Center | | |
| PI Address 1: | Internal Medicine, Div of Geriatrics & Palliative Medicine | | |
| PI Address 2: | 6431 Fannin St | | |
| PI Web Page: | | | |
| City: | Houston | State: | TX |
| Zip Code: | 77030-1501 | Congressional District: | 9 |
| Comments: | | | |
| Project Type: | GROUND | Solicitation / Funding Source: | 2012 Crew Health NNJ12ZSA002N |
| Start Date: | 10/01/2013 | End Date: | 12/31/2015 |
| No. of Post Docs: | 0 | No. of PhD Degrees: | 0 |
| No. of PhD 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: | NASA ARC |
| Contact Monitor: | Ronca, April Elizabeth | Contact Phone: | 650.400.6019 |
| Contact Email: | april.e.ronca-1@nasa.gov | | |
| Flight Program: | | | |
| Flight Assignment: | NOTE: Extended to 12/31/2015 per A. Chu/ARC and NSSC information (Ed., 7/28/15) NOTE: Extended to 9/30/2015 (original end date was 9/30/2014) per NSSC information and A. Chu/ARC (Ed., 9/10/14) | | |
| Key Personnel Changes/Previous PI: | | | |
| COI Name (Institution): | Smith, Scott (NASA Johnson Space Center) | | |
| Grant/Contract No.: | NNX13AQ92G | | |
| Performance Goal No.: | | | |
| Performance Goal Text: | | | |

| | |
|---|---|
| Task Description: | Antihypertensive medications affecting the renin-angiotensin system (RAS), specifically angiotensin converting enzyme inhibitor (ACEI), have been documented to decrease bone turnover in animals, and improved bone mineral density (BMD) in preliminary human studies. We propose a randomized trial to collect pilot data in 30 men and 30 women (15 treated with ACEI and 15 not treated with RAS related medications) to investigate if ACEI prevents bone loss by decreasing bone turnover. We hypothesize that ACEI use for 3 months to treat hypertension (HTN) in older adults will decrease bone turnover by decreasing bone resorption, the primary factor in spaceflight induced bone loss. These results could provide another tool in protecting bone health of astronauts, using a pharmacological agent with very few side effects, which is a significant concern of agents currently being tested. Further, these data may also help understand variability in existing spaceflight data, where crewmembers may have taken antihypertensive medications, which may have confounded results of ongoing studies. Beyond NASA, the clinical implications of this study for the general population are significant. |
| Rationale for HRP Directed Research: | |
| Research Impact/Earth Benefits: | Provide knowledge of prevention in bone loss due to old age. |
| Task Progress: | <p>We were able to recruit 32 patients with hypertension – 22 of them were female and 10 of them were male. A total of 9 males (with 4 without exposure to ACEi and 5 with exposure to ACEi) and 15 females (10 without exposure to ACEi and 5 with exposure to ACEi) (total N = 24) completed the study with 3 month follow up visit.</p> <p>We have completed DXA (dual-energy X-ray absorptiometry) bone density tests in spine and hip regions at baseline for the participants.</p> <p>We have completed serum sample analysis and data entry from the chart review. Data analysis is pending at this time. We plan to publish after completion of data analysis.</p> |
| Bibliography Type: | Description: (Last Updated:) |