| | EX 2010 | | |
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| Fiscal Year: | FY 2019 | Task Last Updated: | FY 10/16/2019 |
| PI Name: | Simpson, Richard Ph.D. | | |
| Project Title: | Promoting Behavioral Health, Cognitive, Sensorimotor and Immune Function Using Guided Imagery to Augment Exercise Training in an Isolated and Confined Spaceflight Analog Environment | | |
| Division Name: | Human Research | | |
| Program/Discipline: | | | |
| Program/Discipline Element/Subdiscipline: | | | |
| Joint Agency Name: | | TechPort: | No |
| Human Research Program Elements: | (1) HFBP:Human Factors & Behavioral Performance (IRP Rev H) | | |
| Human Research Program Risks: | (1) BMed:Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders | | |
| Space Biology Element: | None | | |
| Space Biology Cross-Element Discipline: | None | | |
| Space Biology Special Category: | None | | |
| PI Email: | rjsimpson@email.arizona.edu | Fax: | FY |
| PI Organization Type: | UNIVERSITY | Phone: | 713-397-0121 |
| Organization Name: | University of Arizona | | |
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| PI Address 2: | 1177 E. Fourth Street, Room 308, Shantz Building | | |
| PI Web Page: | | | |
| City: | Tucson | State: | AZ |
| Zip Code: | 85721-0001 | Congressional District: | 3 |
| Comments: | NOTE: Formerly at University of Houston until | September 2017 move to | University of Arizona. |
| Project Type: | Flight | Solicitation / Funding Source: | 2017-2018 HERO 80JSC017N0001-HHCHFBP: Human Health Countermeasures, Human Factors, Behavioral Performance. Appendix D |
| Start Date: | 08/05/2019 | End Date: | 01/31/2023 |
| 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: | Williams, Thomas | Contact Phone: | 281-483-8773 |
| Contact Email: | thomas.j.will1@nasa.gov | | |
| Flight Program: | | | |
| Flight Assignment: | NOTE: End date changed to 1/31/2023 per NSSC | C information (Ed., 10/8/ | (21) |
| Key Personnel Changes/Previous PI: | | | |
| COI Name (Institution): | Germain, Anne Ph.D. (University of Pittsburgh Gordon, Judith Ph.D. (University of Arizona) Connaboy, Christopher Ph.D. (University of Pit |) ttsburgh) | |
| Grant/Contract No.: | 80NSSC19K1480 | | |
| Performance Goal No.: | | | |
| Performance Goal Text: | | | |

| Task Description: | Operating in isolated, confined, and controlled (ICC) or extreme (ICE) environments impacts physical status, psychological symptoms, and cognitive function, all serving to degrade crew performance and jeopardize mission success. Countermeasures, such as exercise training help to reduce such risk, but individuals are still susceptible to problems adapting to and operating in ICC/ICE environments. Physical training has been shown to have positive benefits on cognitive and immune functions, and psychological status of individuals. However, importantly, increased stress levels have been shown to substantially limit individual engagement with these types of physical activity. Therefore, to ensure the efficacy of a physical training countermeasure, strategies need to be developed to ensure crewmembers maintain sufficient levels of training stimuli to provide these protective effects, while in the presence of the increased levels of stress associated with operating in ICC/ICE environments. The overarching hypothesis of this proposal is that structure devercise training performed in an isolated and confined spaceflight analog will ameliorate stress-induced changes in behavioral health, cognitive, sensorimotor, and immune system function. We further posit that adding a guided imagery (GI) intervention component to the exercise training regimen will increase exercise adherence and positive affective responses, and that the beneficial effects of exercise on behavioral health, cognitive, and immune system function in an IICC spaceflight analog; SA2. Determine the effects of an in-flight validated exercise regimen ('SPRINT') on behavioral health, fatigue, cognitive, sensorimotor, and immune system function; SA3. Determine if exercise training, with or without guided imagery, has a positive affective responses to exercise in the ICC spaceflight nalog. We will also explore the effects of adding guided imagery to the exercise regimen on behavioral health, fatigue, cognitive, sensorimotor, and immune system function; SA3. Deter |
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| Rationale for HRP Directed Research: | |
| Research Impact/Earth Benefits: | |
| Task Progress: | New project for FY2019. |
| Bibliography Type: | Description: (Last Updated: 07/09/2025) |