

Fiscal Year:	FY 2010	Task Last Updated:	FY 12/21/2010
PI Name:	Johnston, Smith M.D.		
Project Title:	Develop and Implement Operational Ground Testing Protocols to Individualize Astronaut Sleep Medication Efficacy and Individual Effects		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Behavior and performance		
Joint Agency Name:	TechPort:	Yes	
Human Research Program Elements:	(1) <b>BHP</b> :Behavioral Health & Performance (archival in 2017)		
Human Research Program Risks:	(1) <b>BMed</b> :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:	<a href="mailto:smith.l.johnston@nasa.gov">smith.l.johnston@nasa.gov</a>	Fax:	FY
PI Organization Type:	NASA CENTER	Phone:	(281) 483-0453
Organization Name:	NASA Johnson Space Center		
PI Address 1:	Flight Surgeon		
PI Address 2:	Space Medicine		
PI Web Page:			
City:	Houston	State:	TX
Zip Code:	77058	Congressional District:	22
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	Directed Research
Start Date:	03/18/2009	End Date:	01/21/2010
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:	Shea, Camile	Contact Phone:	281-244-2017
Contact Email:	<a href="mailto:shea@dsls.usra.edu">shea@dsls.usra.edu</a>		
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Dinges, David ( University of Pennsylvania School of Medicine ) Barger, Laura ( Harvard Medical School ) Czeisler, Chuck ( Harvard Medical School ) Beven, Gary ( NASA Johnson Space Center ) Sipes, Walter ( NASA Johnson Space Center )		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

<b>Task Description:</b>	The proposed pilot study provides an opportunity to test the feasibility of a protocol to use with astronauts and other NASA personnel (e.g., flight surgeons, flight directors, and flight controllers) to assess potential carry over effects from sleep medications used during spaceflight operations (including overseas training periods), and following an abrupt awakening from sleep. This information is critically needed to establish optimal and individually tailored usage of sleep medications by key personnel relative to operational demands. The proposed protocol is a feasibility study that will determine the percentage change in sleep inertia from using a medication compared to normal sleep inertia. Subject participants will each choose a hypnotic as their preferred sleep aid; once an appropriate medication is identified, each subject volunteer, in a controlled setting in the Crew Quarters Facility at Johnson Space Center (JSC), will undergo several awakenings during two nights of sleep (one night with the medication, another night with a placebo). Cognitive performance, using a set of three measures, will be evaluated at each awakening. This process will occur under the direction of the study Principal Investigator, a NASA Flight Surgeon.
<b>Rationale for HRP Directed Research:</b>	
<b>Research Impact/Earth Benefits:</b>	
<b>Task Progress:</b>	The study protocol was successfully pilot tested with N=7 subjects (6 NASA flight surgeons and 1 Behavioral Health and Performance element Operations professional) as subjects from March through June, 2009. The pilot study results supported the scientific feasibility of conducting a randomized, double-blind, placebo controlled study of sleep medication effects on alarm-based awakenings. Preliminary analysis from the pilot study indicated differences in performance upon abrupt awakening between the sleep medication and placebo conditions. Thus, the pilot data also support the likelihood of new scientific and clinical insights from the proposed Phase II studies with NASA astronauts.
<b>Bibliography Type:</b>	Description: (Last Updated: 04/09/2019)