Fiscal Year:	FY 2017	**Task Last Updated:**	FY 03/10/2017
PI Name:	Berdahl, John M.D.		
Project Title:	Equinox Balance Goggles: The Effects of Local Orbital Pressure Changes on Intraocular Pressure		
Division Name:	Human Research		
Program/Discipline:	NSBRI		
Program/Discipline--Element/Subdiscipline:	NSBRI--Smart Medical Systems and Technology Team		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	None		
Human Research Program Risks:	None		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	john.berdahl@vancethompsonvision.com	**Fax:**	FY
PI Organization Type:	INDUSTRY	**Phone:**	949-632-4639
Organization Name:	Equinox LLC		
PI Address 1:	3101 W. 57th Street		
PI Address 2:			
PI Web Page:			
City:	Sioux Falls	**State:**	SD
Zip Code:	57108	**Congressional District:**	1
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	NSBRI-RFA-SMARTCAP
Start Date:	10/01/2015	**End Date:**	10/01/2016
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:**	NSBRI
Contact Monitor:		**Contact Phone:**	
Contact Email:			
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):			
Grant/Contract No.:	NCC 9-58-SMST00012		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	ORIGINAL PROJECT AIMS/OBJECTIVES: To demonstrate safety and proof of concept of the Equinox Balance Goggle Device as follows - 1. The Equinox Balance Goggle Device reduces the pressure in the periorbital microenvironment anterior to the orbital rim. 2. The Equinox Balance Goggle Device is safe for use. HYPOTHESES: 1. The Equinox Balance Goggle Device reduces the pressure in the microenvironment anterior to the orbital. 2. The Equinox Balance Goggle Device is safe for use as assessed by adverse events. SPECIFIC AIMS: 1. Create the ability to manipulate pressure of the microenvironment of the orbit with the Balance Goggles with both pressure and vacuum microenvironments. 2. Prove that the optic nerve head morphology changes with increased pressure or vacuum to the microenvironment. 3. Determine that the Balance Goggles are safe for use with pressure and vacuum environments on the eye. KEY FINDINGS: The safety of the Equinox Balance Goggle Device was demonstrated as a result of this study, with no reports of adverse events in the patient population. In this study, the Equinox Balance Goggles System was well-tolerated by the 30 patients enrolled and treated as part of the study protocol. IMPACT OF FINDINGS: Integration of the Equinox Balance Goggle Device as part of NASA Space Programs or Projects may provide a method of mitigating the risk of spaceflight-induced intracranial hypertension/vision alterations through application of pressure in microenvironment directly in front of the eyes of astronauts. PROPOSED RESEARCH PLAN FOR COMING YEAR: There is no additional research planned as part of this grant at this time.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	Earth-based impacts and/or benefits of the research project are still unknown, and are the subject of other work being performed by Equinox LLC.
Task Progress:	October 2023 Update: A peer-reviewed publication citing this funding was added to the Cumulative Bibliography (Ed., 10/30/23). Project complete; the task progress made during this funded grant year was completion of the intended safety study. See also Task Description/Summary.
Bibliography Type:	Description: (Last Updated: 10/30/2023)
Articles in Peer-reviewed Journals	Berdahl J. "The eye in space." US Ophthalmic Review. 2016;9(2):76-7. https://doi.org/10.17925/USOR.2016.09.02.76 , Sep-2016
Articles in Peer-reviewed Journals	Masalkhi M, Ong J, Waisberg E, Berdahl J, Lee AG. "Intraocular pressure during spaceflight and risk of glaucomatous damage in prolonged microgravity." Encyclopedia. 2023;3(4):1187-96. https://doi.org/10.3390/encyclopedia3040086 , Sep-2023