

CRITICAL PATH ROADMAP DISCIPLINE(S)	PRIMARY SPECIES / TYPE	GROUND EXPERIMENT TITLE	NASA OBPR - TASK BOOK								
			Year Experiment Was Listed in Book								
			1995	1996	1997	1998	1999	2000	2001	2002	
Neurovestibular Adaptation	Animal	Adaptive Plasticity of Otolith-Ocular Responses	1995	1996	1997						
Neurovestibular Adaptation	Animal	Adaptive Visual-Vestibular Mechanisms and Gravity	1995	1996	1997	1997	1999				
Neurovestibular Adaptation	Animal	Altered Signal Transduction and Differential Gene Expression in PC12 Phochromocytoma Cells Cultured in "Simulated Microgravity"							2000	2001	2002
Neurovestibular Adaptation	Animal	An Ultrastructural Study of Development in Vestibular Hair Cells, and their Cellular Responses to Hypergravity								2001	2002
Neurovestibular Adaptation; Human Behavior & Performance	Animal	Circadian and Vestibular System Relationships								2001	2002
Neurovestibular Adaptation	Animal	Development and Function of the Mouse Vestibular System in the Absence of Gravity Perception					1999	2000	2001	2002	
Neurovestibular Adaptation	Animal	Dynamics of Neural Adaptation to Altered Gravitational Conditions Revealed by Neurobehavioral, Neurochemical, and Morphological Studies	1995								
Neurovestibular Adaptation; Human Behavior & Performance	Animal	Effect of Gravity on the Regulation of Circadian Rhythms	1995	1996	1997	1998	1999				
Neurovestibular Adaptation; Muscle Alterations & Atrophy	Animal	Effects of Artificial Gravity: Central Nervous System Neurochemical Studies	1995	1996	1997	1998					
Neurovestibular Adaptation	Animal	Effects of Microgravity on Zebrafish Vestibular Development					1999	2000	2001	2002	
Neurovestibular Adaptation	Animal	Functional Correlates of Genetic Expression Induced by Hypergravity			1997	1998	1999				
Neurovestibular Adaptation	Animal	Gravitation and Development of Motricity							2000		
Neurovestibular Adaptation	Animal	Hyper-G Studies of Vestibular Maculas Neural Plasticity	1995	1996	1997	1998					
Neurovestibular Adaptation	Animal	Hypergravity-Induced Modifications in Spatio-Temporal Coding Among Utricular Primary Afferent Neurons				1998	1999	2000			
Neurovestibular Adaptation; Immunology, Infection & Hematology	Animal	Immunological Influences on the Vestibular Sensory Organs					1999	2000	2001	2002	
Neurovestibular Adaptation	Animal	Multisensory Integration in the Vestibular Nuclei								2001	2002
Neurovestibular Adaptation	Animal	Multisensory Interactions to Discriminate Gravity from Translational Accelerations								2001	2002
Neurovestibular Adaptation	Animal	Neural Mechanisms of Adaptation to Altered Gravity		1996	1997						
Neurovestibular Adaptation	Animal	Neural Processing of Ambiguous Gravitoinertial Cues: A Cross Species Comparison								2001	2002
Neurovestibular Adaptation	Animal	Nitric Oxide Signaling in Hypergravity- induced Neuronal Plasticity					1998	1999	2000	N/A	2002
Neurovestibular Adaptation	Animal	Physiological Maturation of Regenerating Hair Cells					1999	2000	2001	2002	
Neurovestibular Adaptation	Animal	Role of MATH1 in Development and Function of Proprioreceptors					1999	2000	2001	2002	
Neurovestibular Adaptation	Animal	Senseless and Gfi1 in sensory neuron and hair cell development								2001	2002
Neurovestibular Adaptation	Animal	The Development of Vestibular Connections;							2000	2001	2002
Neurovestibular Adaptation	Animal	The Development of Vestibular Connections in 1G and Hypergravity									
Neurovestibular Adaptation	Animal	The Effect of Altered Gravity on Retinoic Acid Signaling in the Developing Embryo								2001	2002
Neurovestibular Adaptation	Animal	The Effects of Gravitational Loading and Vibration on Vestibular Ontogeny	1995	1996							
Neurovestibular Adaptation; Advanced Life Support	Animal	The Evolution of Gravity Reception in the Metazoa								2001	2002
Neurovestibular Adaptation; Cardiovascular Alterations	Animal	The Role of the Cerebellum in Cardiovascular Responses to Changes in Gravity					1999	2000			
Neurovestibular Adaptation	Animal	The Role of the Homeobox Transcription Factor cProx1 in the Development of the Vestibular Periphery in Chickens								2001	2002
Neurovestibular Adaptation	Animal	Transduction Mechanisms in Vestibular Otolith Hair Cells	1995	1996	1997						
Neurovestibular Adaptation	Animal	Ultrastructural, Neurochemical and Developmental Responses to Hypergravity			1997	1998	1999	2000			
Neurovestibular Adaptation; Cardiovascular Alterations	Animal	Vestibular Influences on Different Outflow Limbs of the Sympathetic Nervous System							2000		
Neurovestibular Adaptation; Cardiovascular Alterations	Animal	Vestibular Influences on Sympathetic Outflows to Different Organs and Vascular Beds			1997	1998	1999				
Neurovestibular Adaptation	Animal	Vestibular Ontogeny, Adaptation and the Effects of Gravitational Loading in the Rat			1997	1998	1999	2000	2001	2002	
Neurovestibular Adaptation	Animal	Vestibulo-Autonomic Circuits				1998	1999	2000	2001	2002	
Neurovestibular Adaptation	Human	A Prosthetic Foot Sole for the Mitigation of Balance Deficits Caused by Reduced Plantar Sensation								2001	2002
Neurovestibular Adaptation	Human	Adapting to Altered Gravity and Vision	1995	1996	1997						
Neurovestibular Adaptation	Human	Advanced Techniques for Assessment of Postural and Locomotor Ataxia, Spatial Orientation and Gaze Stability				1998	1999	2000	2001	2002	
Neurovestibular Adaptation	Human	Age Associated Differences in Postural Equilibrium Control: Implications for Space Flight							2000	2001	2002
Neurovestibular Adaptation	Human	Basic Gravitational Reflexes in the Larval Frog	1995								
Neurovestibular Adaptation	Human	Context-Specific Adaptation of Gravity-Dependent Vestibular Reflex Responses (NSBRI Vestibular Project 1)				1998	1999	2000			
Neurovestibular Adaptation	Human	Context-specificity and other approaches to neurovestibular adaptation								2001	2002
Neurovestibular Adaptation	Human	Developing Future Countermeasures for the Detrimental Effects of Space Flight: Role of Otolith Systems and Resolution of Tilt/translation								2001	2002
Neurovestibular Adaptation	Human	Development of an Advanced Video Ocular Measurement System		1996	1997						
Neurovestibular Adaptation; Human Behavior & Performance	Human	Development of Data-Driven Models to Describe Astronaut Performance in Microgravity: Full-Body Dynamics and Control	1995	1996	1997	1998	1999				
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Effect of Head Movement on Sympathetic Nerve Activity in Humans; The Effect of Head Movements on Sympathetic Nerve Activity in Humans: Role of the Vestibular System				1998	1999	2000	2001		
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Effect of Simulated Microgravity on the Vestibulospinal Reflex									2002
Neurovestibular Adaptation	Human	Effects of Gravity on Vestibular Development in Mice					1999				
Neurovestibular Adaptation	Human	Environmental Constraints on Postural and Manual Control	1995	1996	1997	1998					
Neurovestibular Adaptation	Human	Gravity in Human Oculomotor Control, Perception & Action	1995	1996	1997	1998					
Neurovestibular Adaptation; Clinical Capabilities; Cardiovascular Alterations	Human	Heart Rate Dynamics During Microgravity Exposure: Data Analysis	1995	1996	1997	1998	1999				
Neurovestibular Adaptation	Human	Human Postural Control Dynamics and Adaptation					1999				
Neurovestibular Adaptation; Human Behavior & Performance	Human	Human Visual Self-Motion and Depth Estimation From Optic Flow in 1G				1998	1999	2000			
Neurovestibular Adaptation	Human	Integration of Multidisciplinary Sensory Data	1995	1996							
Neurovestibular Adaptation	Human	Mechanisms of Sensorimotor Adaptation to Centrifugation	1995	1996	1997	1998	1999				
Neurovestibular Adaptation; Human Behavior & Performance	Human	Microgravity: Sleep Deprivation and Autonomic Control	1995	1996	1997	1998	1999				
Neurovestibular Adaptation	Human	Modification of Eccentric Gaze-Holding								2001	2002
Neurovestibular Adaptation	Human	Motor Adaptation to Coriolis and Contact Forces	1995	1996	1997	1998	1999	2000	2001	2002	
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Neurovestibular Aspects of Artificial Gravity Created by Short-radius Centrifugation								2001	2002
Neurovestibular Adaptation	Human	NSCORT: Vestibular Research(NIH)	1995	1996	1997						
Neurovestibular Adaptation	Human	Otolith and Vertical Canal Contributions to Dynamic Postural Control	1995	1996	N/A	N/A	1999	2000			

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Neurovestibular Adaptation	Human	Otolith-Canal Convergence in Vestibular Nuclei Neurons	1995	1996	1997	1998	1999	2000	2001	2002
Neurovestibular Adaptation	Human	Perceived Self-Motion Assessed by Computer-Made Animations	1995	1996	1997	1998	1999			
Neurovestibular Adaptation; Clinical Capabilities	Human	Pharmacological Countermeasures for Space Motion Sickness							2001	2002
Neurovestibular Adaptation	Human	Relation of Motion Sickness Susceptibility to Vestibular and Behavioral Measures of Orientation	1995	1996						
Neurovestibular Adaptation; Human Behavior & Performance; Cardiovascular Alterations	Human	Sleep Restriction and Mechanisms of Orthostatic Tolerance			1997	1998	1999	2000		
Neurovestibular Adaptation	Human	Somatosensory Suppression and Prevention of Post-flight Re-entry Disturbances							2001	2002
Neurovestibular Adaptation	Human	Spacelab Rotating Chair Analysis; Spacelab Rotating Chair Data Analysis	1995	1996						
Neurovestibular Adaptation	Human	The Role of Vestibular Information in Adaptive Modification of Eye, Head, and Hand Coordination	1995	1996	1997	1998	1999			
Neurovestibular Adaptation	Human	Understanding Full-Body Gaze Control During Locomotion							2001	2002
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Vestibular Contributions to Post-Spaceflight Orthostatic Intolerance: A Parabolic Flight Model	1995	1996	1997	1998	1999			
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Vestibular Influences on Autonomic Cardiovascular Control			1997	1998	1999			
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Vestibular Modulation of Autonomic Responses to Orthostasis						2000	2001	2002
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Vestibular-Autonomic Interactions During and After Prolonged Gravitational Changes			1997	1998	1999	2000		
Neurovestibular Adaptation; Human Behavior & Performance	Human	Virtual Reality Training: "Cybersickness" and Effects on Sensorimotor Functions (This Task began in FY2000)					1999	2000	2001	2002
Neurovestibular Adaptation	Human	Virtual Reality Training: Prevention & Prediction of Space Motion Sickness								2002
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Visual and Vestibular Autonomic Influence on Short-Term Cardiovascular Regulatory Mechanisms				1998	1999			
Neurovestibular Adaptation	Human	Visual and Vestibular Contributions to Human Heading Estimation			1997					
Neurovestibular Adaptation	Human	Visual and Vestibular Contributions to Human Heading Estimation (1 year "seed money")	1995	1996						
Neurovestibular Adaptation	Human	Visual Orientation and Spatial Memory							2001	2002
Neurovestibular Adaptation; Human Behavior & Performance	Human	Visual Orientation in Unfamiliar Gravitational-Inertial Environments				1998	1999	2000		
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Visual Vestibular Interaction	1995	1996	1997					
Neurovestibular Adaptation; Cardiovascular Alterations	Human	Visual-and Vestibular-Autonomic Influence on Short-term Cardiovascular Regulatory Mechanisms						2000		
Neurovestibular Adaptation; Human Behavior & Performance; Advanced Life Support	Human	Adaptation in Artificial Gravity Environments; Adaptation in Artificial Gravity	1995	1996	1997	1998	1999	2000	2001	2002