



Sleep for Science

Brown University

Bradley Hospital

WILLIAM C. DEMENT
SLEEP AND CHRONOBIOLOGY
BEHAVIORAL SCIENCE
RESEARCH APPRENTICESHIP

Retreat Colloquium

23-25 August 2010

Whispering Pines Conference Center
URI Alton Jones Campus, West Greenwich, RI

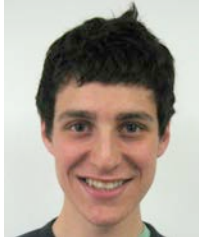
Summer Sleep Retreat, 2010

Monday	Event	Speaker	Topic
1200	Lunch		
1330		Tracy L. Rupp, Ph.D. , Young Investigator	Individual Differences in Response to Sleep Loss
1430	Break		
1450		Christopher Stare, Dement Fellow	Sleep and Emotional Memory
1510		Katie Esterline, Dement Fellow	Personality and Sleep: Why are Some People More Susceptible to Sleep Deprivation?
1530		Jacob Tower, Dement Fellow	Local Sleep and Sleep Homeostasis
1550	Break		
1615		Allyson Schumacher, Dement Fellow	Sleep and Declarative Memory Consolidation

Summer Sleep Retreat, 2010

Monday	Event	Speaker	Topic
1635		Michelle Morales, Dement Fellow	The Association Between Sleep and the Regulation of Metabolic Hormones and Appetite
1700	Hors d'oeuvres		
1800	Dinner		
1930		William C. Dement, MD, PhD	An Evening with Dr. Dement-- Reminiscences from 60 Years of Sleep: Science, Medicine, Politics—just ask...
2100	Camp Fire		
2230	Lights Out		

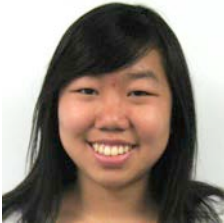
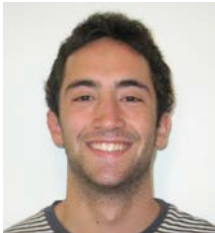
Summer Sleep Retreat, 2010

Tuesday	Event	Speaker	Topic
0915		Jim Spilsbury, MPH, PhD, Young Investigator	The Sleep of Children Exposed to Violence
1015		Sharon Keren, Dement Fellow	Sleep and Athletic Performance
1035	Break		
1055		Katherine Marczyk, Dement Fellow	Sleep Preference and Psychological Symptoms: Who's at Greater Risk?
1115		Kendra Krietsch, Dement Fellow	Sleep and Obesity in Children
1135		Zachary Bornstein, Dement Fellow	Selective Replay of "Tagged" Memories during Sleep: Theoretical Model for Successive State Learning
1200	Lunch		

Summer Sleep Retreat, 2010

Tuesday	Event	Speaker	Topic
1330		Kristina A Simeone, PhD, Young Investigator	The Role of Adenosine Dysregulation in Sleep Disorders and Epilepsy
1430	Break		Change into 'Play Clothes'
1445	Walk in the Woods	Assemble in Groups as Instructed	Small Group Conversations about Graduate/Medical School, Careers, etc.
1600	Assemble at Playground	Games!	[Please return from the Walk in the Woods promptly]
1715	Hors d'oeuvres		
1800	Dinner		
1930	Fun Night	Dement Fellows and Others Arrive at 1930	Facutly, Young Investigators, Staff: Assemble in Conference Center at ~ 1915 to Set Up
2130	Bonfire		
2300	Lights Out		

Summer Sleep Retreat, 2010

Wednesday	Event	Speaker	Topic
0900		Jason C. Ong, PhD, Young Investigator	Awakening to Better Sleep
1000		Tiffany Chan, Dement Fellow	Sleep and Brain Plasticity in the Context of Schizophrenia
1020	Break		
1045		Brandon Terrizzi, Dement Fellow	Sleep and Memory Consolidation: Looking Backward, Looking Forward
1105		Carmen Moedano, Dement Fellow	The Association between Circadian Misalignment, Shiftwork, and Cancer
1125		Jonathan Lassonde, Research Technologist	Lucid Dreaming: A History of Its Study and Potential Implications of Further Investigation
1145		Mary A. Carskadon, PhD, Program Director	Thanks and Farewell
1200	Lunch		

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Young Investigator Presentations

Tracy R. Rupp, PhD, Research Psychologist, Walter Reed Army Institute of Research, Behavioral Biology Branch, Silver Spring, MD

Individual Differences in Response to Sleep Loss

Individual differences in response to sleep loss (i.e., some individuals appear more “resilient” on measures of performance compared to others) have been demonstrated in numerous studies and have been shown to be “trait-like” in studies of total sleep deprivation (Van Dongen et al, 2003). Factors underlying and accounting for these differences in response to sleep loss are not entirely understood and are an area of current investigation. Data will be presented from two separate studies examining individual differences in response to sleep loss. In the first study, we examined potential factors contributing to individual differences by evaluating the extent to which the personality dimension of introversion-extraversion and social experience interact to affect the ability to resist adverse effects of 36 hours of total sleep deprivation. We found that the effect of social exposure on vulnerability/resiliency to sleep deprivation was modulated by the trait of Introversion/Extraversion. Extraverts exposed to social environments were more vulnerable to subsequent sleep deprivation than Introverts, perhaps as a function of lower basal cortical arousal and a greater tendency to actively engage in social interactions, resulting in more rapid fatigue of prefrontal cortical regions. Preliminary data from a recently completed study examining the extent to which an individual’s vulnerability to acute, total sleep deprivation correlates with his/her vulnerability to chronic sleep restriction will also be presented. We hypothesized that subjects who show greater performance and alertness vulnerability to acute, total sleep deprivation will correspondingly show greater performance and alertness vulnerability to chronic, restricted sleep and our preliminary data suggests that this is indeed the case. Taken together, these studies provide additional groundwork for understanding individual difference factors that influence vulnerability to sleep loss and the generalizability and predictability of these differences across different “types” of sleep loss. Such information may be important for further refinement of sleep and performance mathematical models and in the “real-world” could provide aid in selection of personnel for specific jobs that require the ability to resist sleep loss.

Jim Spilsbury, MPH, PhD, Assistant Professor, Center for Clinical Investigation, Case School of Medicine, Cleveland, OH

The Sleep of Children Exposed to Violence

Astonishing numbers of children witness family and community violence. Sleep disturbances associated with violence-induced traumatic stress are common. The purpose of this research is to systematically investigate the sleep behavior and sleep environment of children exposed to violence. Conducting home-based research on these children provides needed data to increase our theoretical understanding of how violence affects children and to guide development of interventions to improve sleep and, ultimately, child health and well being.

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**Kristina A. Simeone, PhD, Resident Assistant Professor,
Department of Pharmacology, Creighton University School of
Medicine, Omaha, NE**

The Role of Adenosine Dysregulation in Sleep Disorders and Epilepsy

Epilepsy is the third most common neurological disorder and tragically, approximately 30% of patients fail to gain control of their seizures with anticonvulsant treatment. Approximately 30-70% of epilepsy patients are afflicted with a sleep disorder co-morbidity which negatively influences cognition, stress, social interactions and productivity and can exacerbate the number of seizures experienced by patients. New therapeutic strategies are required to control medically refractory seizures and treat the sleep disorder co-morbidity to improve the quality of life of patients with epilepsy. Treatment with the ketogenic diet influences brain adenosine levels, successfully reduces seizures and improves sleep-wake patterns. Adenosine is anticonvulsant in seizure-genic regions of the brain such as the hippocampus and is somnogenic in sleep-regulating regions including the lateral hypothalamus. Two of my laboratory's research objectives are to determine whether (i) adenosine dysregulation is an underlying mechanism of seizures and sleep disorders in epilepsy and (ii) adenosine modulation can reduce seizures and improve sleep in a clinically relevant model of epilepsy (Kcna1-null mice). To address this question, we employ in vivo monitoring of seizures and sleep-wake cycles via video-EEG, EMG and actigraphy, real-time biosensor acquisition of dynamic adenosine concentrations, immunohistochemistry, western blots and in vitro multi-electrode array recording techniques.

**Jason C. Ong, PhD, Assistant Professor Department of Behavioral
Sciences, Rush University Medical Center, Chicago, IL**

Awakening to Better Sleep

Chronic insomnia is a widespread problem that affects 10-15% of adults. Despite evidence to support cognitive-behavior therapy (CBT) for insomnia, implementation has been impeded by the limited number of practitioners who are trained to deliver CBT. Moreover, CBT does not address the emotional distress associated with sleep disturbance, which often leads to non-compliance with behavioral treatments. This presentation will describe the development of a treatment program using mindfulness meditation with behavior therapy for insomnia. Using meditation-based techniques, this treatment program is designed to directly address emotional distress along with nocturnal symptoms and could provide an alternative treatment to CBT. Progress will be traced from the early stages of forming a conceptual model to pilot testing and revising the treatment. Supporting data from these studies will be presented along with a description of the current randomized clinical trial.

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2010 William C. Dement Fellows

Zachary Bornstein

Rising junior , Brown University

Tiffany Chan

Rising senior, Pomona College

Katie Esterline

Rising senior, Truman State University

Sharon Keren

Rising senior, University of South Carolina

Kendra Krietsch

Rising junior, University of Arizona

Katherine Marczyk

3rd Year Graduate Student, University of North Texas

Carmen Moedano

Rising junior, Brown University

Michelle Morales

Rising senior, Brown University

Allyson Schumacher

Rising junior, Brown University

Christopher Stare

Rising junior, University of Notre Dame

Brandon Terrizzi

Rising junior, University of Arizona

Jacob Tower

Rising senior, Brown University

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Research Apprenticeship Faculty, Staff, & Trainees

APPRENTICESHIP FACULTY

**Brown Medical School, Department of
Psychiatry and Human Behavior**

Mary A. Carskadon, PhD, Director

John McGeary, PhD

Ron Seifer, PhD

Katie Sharkey, MD, PhD

Leila Tarokh, PhD

Eliza Van Reen, PhD

**Valencia Community College, Department of
Communications**

Kathleen Perri, MA

POSTDOCTORAL TRAINEES

Brown University

Tifenn Raffray, MD

Kay Orzech, PhD

Brandy Roan, PhD

Alyssa Cairns, PhD

RETREAT VISITING FACULTY

Brown University

Rachel Herz, PhD

Alpert Medical School of Brown University

Christine Acebo, PhD

Willoughby Britton, PhD

Chantelle Hart, PhD

Erin O'Brien, PhD

Kristen Stone, PhD

CONSULTING PHYSICIANS

Keith Callahan, MD

Judith Owens, MD

E.P. BRADLEY HOSPITAL SLEEP LAB RESEARCH STAFF

James Bass, Data Entry Specialist

David Bushnell, Sr. Research Assistant

Erin Campopiano, Research Assistant

Marcy D'Uva, Research PSG Technologist

Max Elliott, Administrative Secretary

Ellyn Ferriter, Research PSG Technologist

Caroline Gredvig-Ardito, Data Manager &
IRB Coordinator

Jonathon Lassonde, Research PSG
Technologist

Michelle Loxley, Programmer

Denise Maceroni, Assay Technologist

Gretchen Surhoff, Research Assistant

Paul Zhu, PSG Data Management

VISITING FORMER TRAINEES

Joe Plaksin

Will Coon

ACKNOWLEDGEMENTS

**This summer apprenticeship program was
funded in part by a generous grant from
Brown University alumnus, Bob Daly.**

**The summer research project was funded
by NIMH grant MH076969.**