



WILLIAM C. DEMENT
SLEEP AND CHRONOBIOLOGY
BEHAVIORAL SCIENCE
RESEARCH APPRENTICESHIP

Retreat Colloquium

17-19 August 2016

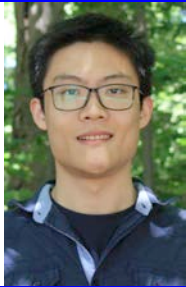
Marcuvitz Auditorium, Sidney Frank Hall
Brown University, Providence, RI

Summer Sleep Retreat, 2016

Summer Sleep Retreat, 2016

Wednesday	Event	Speaker	Topic
1700	Dinner & Fun		BBQ at Sleep Lab & Field Games
Thursday	Event	Speaker	Topic
0900	Snack		
0930		 Mary Beth Miller, PhD, Young Investigator	Sleep and Substance Use in Young Adults: Does Sleeping Impact Drinking?
1030	Break		
1100		 Lauren DeBusk, Dement Fellow	Insomnia & Autism Spectrum Disorder
1115		 Claire Ryan, Dement Fellow	Athletic Performance & Circadian Rhythms
1130		 Tina Ronson, Dement Fellow	Sleep as Neurorehabilitation

Summer Sleep Retreat, 2016

Thursday	Event	Speaker	Topic
1145		Alex He, Dement Fellow	Alzheimer's Disease & Sleep
1200	Lunch		
1315		Richard McCloskey, PhD, Young Investigator	Food responsiveness regulates episodic behavioral states in <i>Caenorhabditis elegans</i>
1415	Break		
1445		Nell Klimpert, Dement Fellow	Sleep & Creative Thinking
1500		Jeevline Jeyakumar, Dement Fellow	The Role of Sleep in Pain Management
1515		Heather Whitehead, Dement Fellow	Shift Workers & Metabolic Changes

Summer Sleep Retreat, 2016

Thursday	Event	Speaker	Topic
1530		Maeve Dennigan, Dement Fellow	Sundowners Syndrome: Circadian Rhythms, Sleep Disturbance & Aging Eyes
1545	Small Groups		Break Out Sessions
1715	Hors d'oeuvres		
1800	Dinner		
1915	Fun Night		
2130	Lights Out		

Summer Sleep Retreat, 2016

Friday	Event	Speaker	Topic
0930	Snack		
1000		Cassie Hilditch, PhD, Young Investigator	Waking Up Tired: Can short naps avoid sleep inertia?
1100	Break		
1130		Bella Scott, Dement Fellow	Role of Sleep in Musician's Lives
1145		Katie McCullar, Dement Fellow	Differential Roles of Light Perception of Rods/Cones and Melanopsin on Sleep & Circadian Rhythms
1200	Lunch		
1315		Jared Saletin, PhD, Young Investigator	Sleep, Brain Structure & Function: Windows into Cognitive & Emotional Development
1415	Break		

Summer Sleep Retreat, 2016

Friday	Event	Speaker	Topic
1445		Kristin Till, Dement Fellow	Memory Reconsolidation during Sleep
1500		Mugdha Mokashi, Dement Fellow	Chronobiology of Fertility
1515		Mary A. Carskadon, PhD, Program Director	Thanks and Farewell

Summer Sleep Retreat, 2016

Young Investigator Presentations

**Mary Beth Miller, PhD, Assistant Professor, Postdoctoral Fellow,
Center for Alcohol & Addictions Studies, Brown University**

Sleep and Substance Use in Young Adults: Does Sleeping Impact Drinking?

Poor sleep health and heavy substance use are public health problems that tend to co-occur among adolescents and young adults. Both of these behaviors have been associated with a host of negative consequences, including impaired immune functioning, motor vehicle accidents, and suicidal ideation. Yet little is known about the direction and degree of prospective associations between these health behaviors. Indeed, the majority of research examining sleep and substance use has focused on alcohol's effects on sleep. Dr. Miller will present cross-sectional and longitudinal data highlighting the impact of poor sleep health on subsequent substance use in adolescents and young adults. She will discuss the implications of these findings for prevention and intervention efforts as well as directions for future research.

**Richard McCloskey, PhD, Postdoctoral Researcher of Neural
Circuits & Behavioral Genetics, University of Pennsylvania**

Food responsiveness regulates episodic behavioral states in *Caenorhabditis elegans*

Animals optimize survival and reproduction in part through control of behavioral states, which depend on the organism's internal and external environments. We monitored behavior in *C. elegans* using long-term imaging to observe episodic behavioral states. We found that animals alternate between high activity (active) and low activity (sedentary) episodes. We show that the incidence of episodes and their behavioral composition depends on food levels and responsiveness to conserved food-signaling pathways such as insulin-like signaling. During active episodes, worms primarily roam, as characterized by continuous whole-body movement. During sedentary episodes, animals exhibit dwelling (slower movements focused in the anterior half of the body) and quiescence (a complete lack of movement). We also assayed the pharyngeal pumping rate (feeding) and in their egg laying behaviors and show that active and sedentary episodes coincide with egg-laying and feeding cessation phenotypes respectively. These results show that behavioral episodes may reflect global changes in the state of the nervous system redolent of the episodic regulation of sleep. Our findings suggest that perception of nutrition is a conserved mechanism that contributes to the regulation of animal behavioral states.

Summer Sleep Retreat, 2016

Cassie Hilditch, PhD, Research Fellow, Sleep for Science Research Laboratory, Brown University

Waking Up Tired: Can short naps avoid sleep inertia?

A short nap can improve alertness and performance by reducing sleep pressure. For this reason, napping at work is a recommended countermeasure for shift workers trying to stay alert during a night shift. Naps can have a negative side-effect though: sleep inertia. Sleep inertia refers to the groggy feeling you experience when you first wake up. This period of low alertness is also a period of performance impairment. Shift workers who nap on shift may need to return to safety-critical duties soon after waking, putting them at risk of an inertia-related error. Therefore, in order to develop evidence-based recommendations, it is important to understand the profile of sleep inertia following naps under night shift conditions.

This presentation covers a two-part study investigating sleep inertia following a short nap taken: a) during a simulated night shift, and b) at the end of a simulated night shift before the commute home.

Jared Saletin, PhD, Postdoctoral Fellow in Child Mental Health, Alpert Medical School, Brown University

Sleep, Brain Structure & Function: Windows into Cognitive & Emotional Development

Sleep is a powerful determinant of cognitive and brain function in adults. During childhood and adolescence, rapid maturation in both brain structure and sleep neurophysiology is accompanied by the emergence of adult-like cognitive and emotional ability, and the regulation of these processes is paramount for healthy psychosocial development. Despite an understood and intimate role of sleep in regulating cognition in adults, far less is known how sleep during childhood and adolescence may index, or even shape, this successful emergence of cognitive and emotional brain function. Thus, in this talk, we will examine how sleep neurophysiology relates to cognition-regulating brain structure, how these relationships may determine the benefits of sleep for cognition, and how such benefits may be shifting critically throughout adolescent development. Finally, we will turn to attention deficit hyperactivity disorder (ADHD) as one situation where an understanding of sleep-dependent cognitive processes may inform a state where atypical cognition and sleep abnormalities co-occur.

Summer Sleep Retreat, 2016

2016 William C. Dement Fellows

Lauren DeBusk

2016 Graduate, University of Tennessee, Knoxville

Maeve Dennigan

Rising senior, Loyola University Maryland

Alex He

Rising senior, Brown University

Jeevline Jeyakumar

Rising third-year, University of Bedfordshire

Nell Klimpert

Rising junior, Oberlin College

Katie McCullar

Rising senior, James Madison University

Mugdha Mokashi

Rising junior, University of Alabama at Birmingham

Tina Ronson

Rising senior, Stonehill College

Claire Ryan

Rising sophomore, Brown University

Bella Scott

Rising senior, University of North Texas

Kristin Till

Rising senior, University of Arizona

Heather Whitehead

Rising senior, University of Tulsa

Summer Sleep Retreat, 2016

Research Apprenticeship Faculty, Staff, & Trainees

APPRENTICESHIP FACULTY

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

Mary A. Carskadon, PhD, Director

David Barker, PhD

Rachel Herz, PhD

Jeanne McCaffery, PhD

Ron Seifer, PhD

Eliza Van Reen, PhD

**Alpert Medical School of Brown University,
Department of Medicine**

Katherine M. Sharkey, MD, PhD

**Rush University, Department of Behavioral
Sciences**

Stephanie Crowley-McWilliam, PhD

**Temple University, Department of Public
Health**

Chantelle Hart, PhD

**University of California, Berkeley,
Department of Neuroscience**

Bryce Mander, PhD

**University of Pennsylvania, Department of
Psychiatry**

Namni Goel, PhD

**University of Tennessee, Knoxville,
Department of Nutrition**

Hollie Raynor, PhD

**Valencia College, Department of
Communications**

Kathleen Perri, MA

Vanderbilt University, School of Medicine

Althea Robinson-Shelton, MD

Walter Reed Army Institute of Research

Allison Brager, PhD

RETREAT VISITING FACULTY

Alpert Medical School of Brown University

Christine Acebo, PhD

POSTDOCTORAL FELLOWS

Jared Saletin, PhD

Cassie Hilditch, PhD

Mary Beth Miller, PhD

SLEEP LAB RESEARCH STAFF, E.P. BRADLEY HOSPITAL

Ashten Bartz, Sr. Research PSG Tech

David Bushnell, Sr. Research Assistant

Corinna Cluckey, Supervising Tech

Max Elliott, Administrative Secretary

Ashley Ernst, PSG Tech & Research
Assistant

Caroline Gredvig-Ardito, Data Manager &
IRB Coordinator

Shelley Gresko, Research Volunteer

Abby Hulverson, Supervising Tech

Scot Kelly, Supervising Tech

Alexis Rodriguez, Research Assistant

PERINATAL SLEEP RESEARCH STAFF, RI HOSPITAL

Geraldine Boni, Research Assistant

Sarah Carr, RN, Research Assistant

Julie Quattrucci, Research Assistant

ACKNOWLEDGEMENTS

The summer research project was funded by NIDDK and the academic activities were funded by the laboratory restricted research fund and a generous gift from Craig Cogut (Brown University alumnus, '75).