



WILLIAM C. DEMENT
SLEEP AND CHRONOBIOLOGY
BEHAVIORAL SCIENCE RESEARCH
APPRENTICESHIP

Retreat Colloquium

15-17 August 2018

Room 130, 85 Waterman Street
Brown University, Providence, RI

Summer Sleep Retreat, 2018

Wednesday	Event	Speaker	Topic
1700	Dinner & Fun		BBQ at Avalon at Center Place; Fun & Games
Thursday	Event	Speaker	Topic
0915	Snack		
0945		Amy R. Wolfson, PhD, Visiting Investigator	Reflections on a Research Trajectory: Passion for Understanding Developmental Transitions and Sleep
1045	Break		
1115		Erika Yamazaki, Dement Fellow	Phenotypic Variability in Response to Sleep Loss
1130		Jack Plageman, Dement Fellow	Circadian Misalignment in Low SES Persons and its Impact on Metabolism
1145		Eli Wolfgang, Dement Fellow	Optimizing Athletic Performance in the Context of Sleep and Circadian Rhythm

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Thursday	Event	Speaker	Topic
1200	Lunch		
1300		Edward Franz Pace-Schott, MS, MA, PhD, Visiting Investigator	Sleep Effects on the Consolidation and Generalization of Extinction and Habituation
			Poster Viewing
1400	Break	Bailey Driscoll, Brown University 2020	Sleep in the Children of Women with Perinatal Mood Disorders
		Gabriela De Quieroz Campos, Brown University 2019	Sleep regularity over a 12-week period as an indicator of ADHD symptom severity in early adolescents
1430		Alex Stover, Dement Fellow	Sleep and Health Disparities
1445		Ian Chiquier, Dement Fellow	The Role of Sleep in Fear Conditioning and Fear Extinction within PTSD

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Thursday	Event	Speaker	Topic
1500		Candice Montenegro, Dement Fellow	Sleep Within the Family Unit: A Cultural Perspective
1515		Namni Goel, PhD, Visiting Investigator	Biomarkers: Predictors of Responses to Sleep Deprivation
1630	Small Groups		Break Out Sessions
1730	Dinner		
1915	Fun Night		
2130	Lights Out		

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Friday	Event	Speaker	Topic
0915	Snack		
0945		Christelle Anaclet, PhD, Visiting Investigator	The Parafacial Zone: a Critical Role in Slow-Wave-Sleep Control
1045	Break		
1115		Nishu Hosamane, Dement Fellow	The Glymphatic System and Alzheimer's Disease
1130		Jackie Leete, Dement Fellow	Dreaming and Memory
1145		Nana Adu, Dement Fellow	Impact of Alcohol Mis/use on Sleep in Adolescents and Young Adults
1200	Lunch		

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Friday	Event	Speaker	Topic
1315		Allie Elkhadem, Dement Fellow	Ramadan and Sleep
1330		Nick Mertens, Dement Fellow	The Relationship Between Sleep and White Matter after Traumatic Brain Injury
1345		Mary A. Carskadon, PhD, Program Director	Thanks and Farewell

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Visiting Investigator Presentations

Amy R. Wolfson, PhD

Professor of Psychology, Loyola University Maryland

Reflections on a Research Trajectory: Passion for Understanding Developmental Transitions and Sleep

Our culture generally under values or appreciates “in-between” phases or transitions. In looking back and forward, understanding changes (and their implications) for sleep behaviors-- timing, quantity, and regularity-- at significant developmental transitions (i.e., birth of first child, middle school, high school to college) has been fundamental to my scholarship. This talk will draw attention to these transitions in reviewing studies on parents and newborns’ sleep, postpartum sleep in first-time mothers, early adolescents’ sleep-wake patterns, and shifts in sleep behaviors from high school to college. Keeping past questions and findings in mind, implications for future research and interventions will be discussed.

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Visiting Investigator Presentations

Edward Franz Pace-Schott, MS, MA, PhD

Assitant Professor of Psychiatry, Harvard Medical School

Associate Researcher, Psychiatric Neuroscience, Department of Psychiatry, Massachusetts General Hospital

Sleep effects on the consolidation and generalization of extinction and habituation

Sleep disturbance is a common symptom of anxiety and traumatic-stress disorders. However, epidemiological and prospective studies show that poor sleep itself may predispose individuals to develop such disorders. Why might this be the case? Sleep promotes memory consolidation and also helps regulate our emotions. Two important types of memory that automatically regulate our everyday anxieties are fear extinction and habituation. In fear extinction, we learn that something once feared no longer needs to be feared. This new memory doesn't erase fear, rather it coexists with and inhibits the fear memory. Similarly, in habituation, neuroplastic adaptation to repeated stimuli represents a simple associative memory. Fear extinction and habituation are impaired in anxiety and traumatic-stress disorders. Thus poor sleep may impair the consolidation of these memories and increase the risk of developing these disorders. Using psychophysiology, we have shown that sleep promotes the consolidation and generalization of extinction and habituation. Our fMRI studies have shown two potential mechanisms for the increased risk of anxiety disorders in persons with insomnia. First, insomniacs show resting state connectivity between fear and fear-regulatory regions intermediate between that of healthy individuals, who have greatest connectivity, and persons with Generalized Anxiety Disorder who have the least of the three groups. Second, in insomniacs, activation of fear regulatory structures may be delayed relative to good sleepers. During the gold-standard treatment for anxiety, exposure therapy, therapeutic extinction memories are formed. These memories must consolidate for treatment to be successful. Therefore, we also study whether strategically timed sleep might augment exposure therapy for anxiety disorders.

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Visiting Investigator Presentations

**Namni Goel, PhD, Research Associate Professor of Psychology
in Psychiatry, Division of Sleep and Chronobiology,
Department of Psychiatry, University of Pennsylvania
School of Medicine**

Biomarkers: Predictors of Responses to Sleep Deprivation

This presentation will describe the trait-like phenotypic differential vulnerability evident in cognitive responses to sleep loss in healthy adults. Also discussed are several promising biomarker approaches, including “omics” methods, for predicting these individual differences.

**Christelle Anaclet, PhD, Assistant Professor, Department of Neurobiology,
University of Massachusetts Medical School**

The Parafacial Zone: A Critical Role in Slow-Wave-Sleep Control

Recently, a growing number of brain areas have been involved in slow-wave-sleep (SWS) control. However, only activation of parafacial zone (PZ) GABAergic neurons induce long lasting and consolidated SWS associated with enhanced slow-wave-activity, a marker of SWS quality. Moreover, activation of PZ GABAergic neurons is able to completely or partially block the wake-promoting action of modafinil and caffeine, respectively. These results indicate a central role of PZ GABAergic neurons in sleep control. In my lab, we are studying how the parafacial zone neurons control sleep-wake cycles. For example, we have shown that PZ GABAergic neurons project to and inhibit the wake-promoting parabrachial nucleus. More recent results indicate that intermingled PZ glutamatergic neurons do not play a critical role in sleep-wake control. Understanding how PZ GABAergic neurons control sleep will not only provide a better understanding of the neuronal circuitry regulating sleep-wake cycles but also to develop new strategies to treat sleep problems associated with many diseases.

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2018 William C. Dement Fellows

Nana Adu

Rising senior, Brown University

Ian Chiquier

Rising sophomore Brown University

Allie Elkhadem

Rising sophomore, Brown University

Nishu Hosamane

Rising sophomore, University of Maryland, College Park

Jackie Leete

Rising senior, Wesleyan University

Nick Mertens

Rising first year PhD student, The University of New Mexico

Candice Montenegro

Rising senior, Gettysburg College

Jack Plageman

Rising senior, The Pennsylvania State University

Alex Stover

2018 Graduate, University of Kansas

Eli Wolfgang

Rising senior, Middlebury College

Erika Yamazaki

Rising senior, Binghamton University, State University of New York

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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

Jared Saletin, PhD

Ron Seifer, PhD

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

Katherine M. Sharkey, MD, PhD

CPS, Inc., Newport, RI

Eliza Van Reen, PhD

DEMENT FELLOWS' MENTORS

Furman University

Dr. Erin Wamsley

**Harvard Medical School, Massachusetts
General Hospital**

Edward F. Pace-Schott, PhD

Oregon Health Sciences University

Andrew McHill, PhD

University of Alabama

Heather Gunn, PhD

University of Arizona College of Medicine

Michael A. Grandner, PhD

University of California, Irvine

Bryce Mander, PhD

University of Colorado, Boulder

Josiane Broussard, PhD

University of Missouri

Mary Beth Miller, PhD

**University of Pennsylvania School of Medicine,
Department of Psychiatry, Division of Sleep
and Chronobiology**

Namni Goel, PhD

Walter Reed Army Institute of Research

Allison Brager, PhD

Jenna Mantua, PhD

SLEEP LAB RESEARCH STAFF, E.P.

BRADLEY HOSPITAL

Anoushka Agrawal, Research Volunteer

Ryan Bahar, Supervising Tech

Ashten Bartz, Sr. Research PSG Tech

David Bushnell, Sr. Research Assistant

Logan Cho, Supervising Tech

Max Elliott, Administrative Secretary

Caroline Gredvig-Ardito, Data Manager & IRB
Coordinator

Leslie McCauley, Supervising Tech

Kiki Marlam, Research Volunteer

Jon Roberts, Supervising Tech

Claire Ryan, Supervising Tech

Jess Weathers, Research Assistant

PERINATAL SLEEP RESEARCH STAFF, RI HOSPITAL

Sarah Carr, RN, Research Assistant

Bailey Driscoll, Research Volunteer

Julie Quattrucci, Research Assistant

Jackie Leong, Research Assistant

Brown University UTRA Summer Research Fellows

Gabriela De Quieroz Campos

Bailey Driscoll

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Ronald	Green*	Katherine	Sharkey
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Sharon	Keenan	Amy	Wolfson
Elizabeth	Klerman	James	Wyatt*

*Former Dement Fellow or undergraduate assistant at Stanford or Brown.