



The BRAINet SYNAPSE

BRAINet is a friends group of the OHSU Brain Institute (OBI) that helps build community awareness, interest, and support for neuroscience research at OHSU.

BRAINet Synapse Newsletter

May 2016

President's Column

Greetings!

I hope you have had a restful month since our April lecture about the power of sleep. I came across a recent article that adds to our knowledge about sleep. Researchers at the French National Center for Scientific Research monitored mice brain activity as they explored an open chamber, noting which cells lit up in which location. Later on as the mice napped, their "place cells lit up again as the brain replayed the memory of roaming the chamber." This seems to support the belief that at least one purpose of sleep is to fix experience in long-term memory. The purpose of their study, by the way, was to see if they could implant a memory that never happened in the brain of these mice. They found that at least in mice, "memories are malleable during sleep replay." What will they find out next? I look forward to learn along with you at our next luncheon.

Best wishes,

Helen Richardson, President



April Lecture Luncheon

By Surja Tjhaja, BRAINet Member

"Waking Up to the Power of Sleep and Dreams"

Dr. Kim Hutchison, named one of Portland's "Top Docs" for 2014, treats both sleep medicine and neurology patients at OHSU. Her research interests include functional neuroimaging of the brain during sleep deprivation, alternative treatments of chronic insomnia, tele-neurology, and using technology to increase access to care in Oregon and around the world.



Dr. Hutchison explained that the need for sleep is different for different ages: adults need 7-8 hours, whereas teens need 9-10 hours. The sleeping time cycle is also different: teenagers are programmed to be up later at night than adults. Dr. Hutchison's theory is that this is an evolution from our cave dwelling time. The youth were physically stronger than the adults, and so could guard the community at night, while the elders went to sleep early to prepare for the next day.

Sleep is a vital need for mammals - sleep deprivation will compromise the frontal lobe of the brain which is responsible for executive function and mood regulations. A lack of sleep can cause poor mood, lack of ability to cope,

being more reactive, poor judgment and poor concentration. These side effects of not sleeping can sometimes cause poor eating habits, thus the connection between lack of sleep and obesity.

Why do we sleep? It is still not well understood. One hypothesis for the need to sleep is that the brain needs to cleanse itself of waste and recharge (much like a cell phone).



When we sleep, we go through several cycles that last 2-3 hours each and then repeats. REM sleep is the stage when we dream. Dr. Hutchison emphasized that everyone dreams, although not everyone is aware of it. REM sleep consists of 20% of sleep time.

Dreaming is a state of consciousness characterized by internally generated actions and events that usually tell a story. The story is uniquely personal, complex, imaginative, and highly visual. Dreaming is important for learning and memory, and helps process our emotions.

Dreaming activates the limbic system (or the “older brain,” evolutionarily speaking), which is responsible for emotions such as joy, awareness, anger, sadness, surprise, fear, etc.

Sleep disorders affect 40 million Americans resulting in lower work productivity, absenteeism, and causes relationship problems. Dr. Hutchison concluded her talk by outlining four major sleep disorders:

1. Insomnia (can't sleep, stay asleep or wake too early)
2. Obstructive sleep apnea (causes high blood pressure, heart disease, and stroke; all caused by the frequent jolt of energy to inhale oxygen)
3. Circadian rhythm disorder (e.g., due to jet lag and social demands)
4. Narcolepsy (a chronic neurological disorder involving the loss of the brain's ability to regulate sleep-wake cycles)

May Lecture Luncheon

Join us on Monday, May 16 at 11:30 a.m. at the Multnomah Athletic Club for a lecture luncheon with Noah Beadell, M.D, who will present **“Stroke in 2016: Cause, Care and Cure.”**



Dr. Beadell is the director of the Neurohospitalist Program and has specialized training in the treatment of stroke and diseases of blood vessels in the brain.

11:30-11:45 Registration and Social Time

11:45 Lunch Served

12:00 – 1:00 Luncheon and Lecture

Cost

\$25 Members

\$25 Guests of Members

\$30 Non-Members

To register and pre-pay to secure your reservation, please visit:

<https://goo.gl/qRiact>

Registration will close at midnight on Wednesday, May 11.

This month we will be served smoked pork tenderloin. Please note there is only one option for all vegetarian/ vegan/ gluten free requests.

Did you know?

May
is
**American Stroke
Month**

Brain in the News

By George Ivan Smith,
BRAINet Member

“Depression is more than just sadness,” said Karen Bascom of the University of Mississippi Medical Center (2-4-16) in *Brain in the News* April 2016. She described research that involves people with major depressive disorder (MDD). People with MDD may have fewer glial (glue) cells called astrocytes in parts of the brain’s hippocampus.

For more than 15 years, three professors – Drs. Rajkowska, Stockmeier, and Miguel-Hidalgo – have collaborated in studies of the brain’s cellular and biochemical changes in mental illness. In this recent study they collected brain tissue from 17 deceased people with MDD symptoms, and matched each sample with a non-MDD control by sex and age.

The scientists cut the tissue into sections of 40-microns thickness and identified astrocytes by

treating the cells to find glial fibrillary acidic protein (GFAP), which astrocytes contain. Astrocytes are glial cells that transport and recycle chemicals in the brain, sort of like delivery and garbage trucks.

Researchers found that MDD patients who were not taking medication had 26% fewer astrocytes in parts of the hippocampus than healthy subjects or those taking antidepressants. But they don’t know if antidepressant use restored astrocytes or prevented them from being lost.

The researchers also suggest a link between astrocyte loss and stress-related corticosteroids. While the UMMC team’s study helps explain the brain pathology associated with depression, 17 individuals is a small sample, and only seven of those were using antidepressants near the time of their deaths.

For the full article see: *Brain in the News*, Vol.23 No.3, April 2016.

Participate in Research

You can help OHSU Brain Institute scientists find new ways to prevent and treat neurological (brain and nervous system) disorders when you participate in research.

In some cases, you can join a clinical trial whether or not you have a neurological disorder. Clinical trials are research studies that help doctors find ways to improve health and treat disease by testing new treatments in humans. The results of these research studies, called outcomes, give scientists and doctors the information they need to change and improve the way disorders are treated or prevented.

This month’s featured clinical trials:

[Meditation or Health & Wellness Education via Internet for Adults 50-80 Years Old](#)
[Effects of augmenting cholinergic function on gait and balance](#)

For more information on clinical trials, visit:

<http://www.ohsu.edu/xd/health/services/brain/research-training/participate-in-research.cfm>

Featured Event

If You're Caring for Someone with Dementia, Meet Teepa

Free Dementia Training With Teepa Snow

Wednesday, June 1, 9 a.m. – 4 p.m.

Wilsonville Holiday Inn

Cost: Free

Oregon Care Partners invites professional and family caregivers to an exclusive event with Teepa Snow. A nationally recognized and loved dementia-care training expert, Teepa has more than 30 years experience in caring for older adults who are experiencing changing abilities. Whether you're a family member or professional caregiver, Teepa's trainings can make your caregiving experience more rewarding and less stressful.

This event will be held Wednesday, June 1, 9 a.m. – 4 p.m., at the Wilsonville Holiday Inn. Thanks to a grant from the State of Oregon, the Teepa Snow dementia care training is FREE of charge to those who live and work in Oregon. **Space is limited – register now to reserve your spot.** For more information and to register, go to www.OregonCarePartners.com or call 1-800-930-6851.

WE'RE GOING GREEN!

Beginning in August, we will be switching to a primarily electronic format for The Synapse. Members in good standing can still elect to receive a printed version in the mail.

Please contact Kate Stout to review your membership status or provide an email address to continue to receive our monthly newsletter.



BRAIN
Institute

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