



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

February 2016

President's Column

I hope that 2016 has started well for you. As you may know, my professional work was in the field of addiction. Although I always look forward to Brain Awareness season, I am especially enthusiastic about this year's Brain Awareness Lecture Series. With Oregon's recent legalization of marijuana, learning the latest information about this drug's effects in the brain is most timely. I hope you will be able to take advantage of this sure to be fascinating set of lectures.

Warmest wishes,

Helen Richardson, President

January Lecture Luncheon

By Julie Branford, Past President

"The Female Brain: How is it Unique?"



Dr. Tarvez Tucker is an attending neurointensivist in the Neuroscience Intensive Care Unit. Her clinical and research focus has been traumatic brain injury, the female brain, and clinical disorders unique to

women, such as migraine and chronic pain.

She started the presentation by noting that there are very few anatomical differences, but lots of functional ones, between men's and women's brains. She talked about the problems

that seem more unique to women than men: migraines (3-1), depression and anxiety, rheumatoid arthritis, lupus, and MS; while suicide is more common in men.

She talked about "Flash Bulb Memories" – such as remembering the details of your surroundings when you learned about the 9/11 crashes, or the JFK or MLK assassinations. Women tend to remember more details about their own personal surroundings when they learned of those kinds of events for some unexplained, as of yet, reason.

Dr. Tucker talked about the differences in smiles: genuine versus "Pan Am" (where you smile only with your mouth and not with your eyes - a "Botox Smile"). These different smiles are more easily recognized by women than men.

Men are geared to recognize emotions more in men than in women. Think back to the cave man days when a man needed to quickly determine whether an approaching man was friend or foe.

Women read emotions in both genders better than men do. She showed a series of photos (of men and women) with various facial expressions and had a few multiple choice adjectives to choose



from. She challenged each person to think about what emotion they perceive when looking at those expressions. More women got 100% than any of the men in attendance, to prove her assertion.

The amygdala is larger in men than in women, while women have a larger frontal cortex, which



dampens the “wild beast” of the amygdala. Women tend to reflect or evaluate a potential threat or emotional situation rather than simply allowing the amygdala to “run wild.”

Women also recall more emotional autobiographical stories in detail than men do. She showed interviews of a married woman followed by her husband both answering the same question: tell me about when you got engaged. Women could recall specific details (name of the restaurant, the weather that day, etc.) while the men recalled many fewer details. She noted that women encode memories in the amygdala differently than men do – either on the right or left side of the amygdala. She also noted that the amygdala “never forgets” and that often leads to problems for people later on, both physically and psychologically.

Dr. Tucker noted that men do far better at mental rotation (not needing to turn a map upside down to figure out how to proceed to a new destination, while women tend to turn the map to match the direction in which she is walking or driving, so left is left and right is right to her). She also commented that men are better at spatial perception and math.

Women tend to transition between right and left brain hemispheres more easily than men do, while men are better at “front to back” brain functions. The genders vary in aggression and language development, as well as sensitivity to pain.

The male brain is 11% larger than women’s brains, adjusted for body size; this percentage is statistically significant. Women, however, have

a greater grey/white matter ratio than men – but, as with other aspects, the meaning or significance of these differences isn’t yet known.

In closing her presentation, she encouraged everyone to increase the dendritic density of our brains by doing intensely cognitive things over a short period of time: e.g., learn a foreign language in two weeks! She urged us to do things that are uncomfortable to our brains: learn Sudoku or something else that builds the dendrites in our brain.

She noted that this is brand new research about gender differences in male and female brains – both anatomically and functionally. She commented that it is a very exciting time to be doing this kind of research!

Lastly, she commented that we should remember that we all started out female for the first few weeks of our being! This was a presentation that was well beyond the “Men are from Mars; Women are from Venus” or “Men are from Ford: Women are from GM” perceptions. With fMRI, scientists are now able to see male and female brains processing the same photos or other mental skills in order to note the similarities and differences. Very exciting, indeed!



OHSU20

Receive 20% off Brain Awareness Season Tickets with this promo code!

Visit www.ohsubrain.com/pdx or call 1-800-273-1530 for information on how to purchase tickets.

February Lecture Luncheon



Join us on Monday, February 15 at 11:30 a.m. at the Multnomah Athletic Club for a lecture luncheon with Laurence Trussell, Ph.D. Dr. Trussell's presentation is titled, "*Studying brain circuits to quiet that*

ringing in the ears: New directions for Tinnitus research."

Dr. Trussell is a professor in the Oregon Hearing Research Center and a scientist in the Vollum Institute.

11:30-12:00 Registration and Social Time

12:00-1:00 Luncheon and Lecture

Cost

\$25 Members

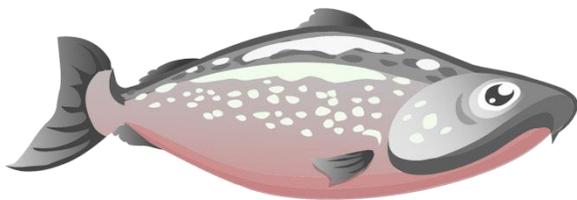
\$25 Guests of Members

\$30 Non-Members

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

<http://goo.gl/hc3qk8>

Registration will close at midnight on Wednesday, February 10.



This month we will be served Grilled Salmon. Please note there is only one option for all vegetarian/vegan/gluten free requests. Substitutions and special requests cannot be accommodated.

Brain in the News

*By George Ivan Smith,
BRAINet Member*

One out of four 12th grade students reports having five or more alcoholic drinks in the past two weeks. Adolescents' impulsivity leads them to binge drinking—5-20 drinks each time. The extended period of heightened neuroplasticity during the first 30 years of life involves extensive synaptic pruning and myelination of the prefrontal cortex that is critical to planning and decision-making. This makes youths sensitive to alcohol and other drugs.

Moheb Costandi, "The Long-Term Effects of Adolescent Alcohol Exposure," (11/23/2015) discusses findings at the annual meeting of the Society for Neuroscience October 2015 in Chicago.

Unlike adults, adolescents are more sensitive to alcohol's rewarding effects and cognitive functions, and less sensitive to sedative effects that signal adults to stop drinking, so adolescents tend to drink until they black out, reported Linda Spear, Binghamton U. Her research shows that intermittent exposure in adolescence causes adolescent response to persist into adulthood, now called Adolescent Alcohol Syndrome.

The brain's resident immune cells, microglia, appear to respond to alcohol exposure in the adolescent brain as if it were an injury. Fulton Crews, U. North Carolina Medical Center, and colleagues in 2008 found significantly higher levels of activated microglia in post-mortem brain tissue from adult alcoholics than in tissue from non-alcoholics. Recently, his team found adolescent binge drinking associated with increased neuroimmune genes in the prefrontal cortex, which persists into adulthood, and may contribute to developing alcoholism.

For the full article see:

dana.org/News/The_Long_Term_Effects_of_Adolescent_Alcohol_Exposure/

Educational Opportunities in the Community

alzheimer's association®

THE BRAINS BEHIND SAVING YOURS®

Public Health Webinar Series

- 1/27 The Healthy Brain Initiative: Local Impact & Helpful Tools
- 2/17 Know the 10 Signs: Early Detection Matters (Nationally developed curriculum)
- 3/16 Risk Reduction Strategies for Cognitive Decline
- 4/20 Healthier Living for your Brain and Body (Nationally developed curriculum)
- 5/18 Caregiving & Chronic Disease: Understanding Caregiver Burden
- 6/22 Staying Safe: Challenges & Solutions for Communities

Register here: <https://goo.gl/1CbDkz>



Free classes available now!

Oregon Care Partners, funded by the State of Oregon, offers free caregiver training developed and taught by experts in the field of long term care on topics concerning age related health issues. Free CEUs available to long term care professionals!

Class Topics Include:

- Safe medication management
- Caring for persons with Alzheimer's or dementia
- Strategies to manage common challenging behaviors
- Alzheimer's and related dementia training for first responders

Convenient!
Both online and
in-person
classes

Visit www.OregonCarePartners.com
to learn more and register for a free class today!

Family members, all staff in long term caregiver settings, social workers, case managers, physicians, first responders, urgent care staff and members of the public are encouraged to sign-up for free classes.



www.OregonCarePartners.com · 1-800-930-6651 · info@oregongcarepartners.com

BRAINet Contacts:

Kate Stout – Program Coordinator
503.494.0885 stoutk@ohsu.edu

Helen Richardson – President of BRAINet
gsgram@comcast.net

Nancy DeGraw – Membership Chair
njdegrow@msn.com



BRAIN
Institute