



# National Consortium on Alcohol and NeuroDevelopment in Adolescence

UC San Diego ♦ SRI International ♦ Duke University  
Oregon Health & Science University ♦ University of Pittsburgh

## Winter 2016 Newsletter

### SHOUT OUT to NCANDA-Duke



Michael De Bellis, MD, MPH is the Principal Investigator of the Duke University Medical Center site of NCANDA. Dr. De Bellis is a Professor of Psychiatry and Behavioral Sciences at Duke University, where his research focuses on neurodevelopment of maltreated youth. He has been the recipient of numerous national research grants and published more than 70 academic papers on topics ranging from neuroimaging to childhood trauma. Find out more at [ncanda.org/duke.php](http://ncanda.org/duke.php).

### What Are You Wearing?

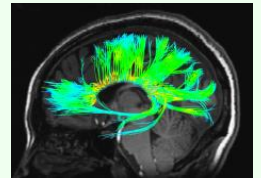
Wearable technologies, once limited to sci-fi novels, have made their way into our research. With recent advancement of activity monitors—Fitbit Tracker, Nike+FuelBand, Apple Watch—these consumer technologies now offer opportunities to gain novel insight into daily activity of our participants. These devices might lead to discovering lifestyle factors that affect brain development, such as finding links between activity levels and changes in mood or even sleep quality. See our recent study using a fitness tracker and sleep soundness measures in our NCANDA adolescents: <http://www.journalsleep.org/ViewAbstract.aspx?pid=30164>



### Neurons



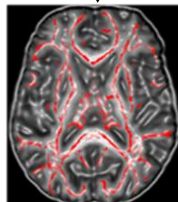
Neurons are brain cells and the foundation for thinking, memory, problem solving and all other cognitive abilities and also for motor control and sensing the world around us. They even help us detect our internal thoughts, emotions and feelings. Communication between neurons occurs through chemical and electrical signals carried by axons. Myelinated axons have an outer coating of fatty cells that work as an insulator to accelerate transmission of signals to the brain and between brain regions. Not all neurons are myelinated. Most myelinated neurons are in parts of the body outside of the brain—our arms, fingers, and legs. Speeding communication between our hand and brain help move our hand quickly from a hot stove.



### Results Are Coming In!

Publications are emerging from the results from the first round of NCANDA data collection! Articles characterizing our participant group indicate that 2,500 interested families completed eligibility screening for the study. Of the 1,438 eligible participants, 831, split between male and female volunteers, were enrolled to represent the population of the United States across ethnic, socioeconomic, and risk demographics.

Neuroimaging studies of the brain structure of NCANDA youth revealed expected patterns — older participants have smaller gray matter volumes yet larger white matter volumes than younger participants. Gray matter of the cerebral cortex includes neurons, which are brain cells needed for cognitive and motor functioning and undergo "pruning" with experience during development. White matter includes axons, which connect neurons. These connections become more extensive and complex with development. You can keep up to date with our new findings by visiting our website at: <http://ncanda.org/publications.php>.



### Color Cones

Imagine life in black and white. A monochromatic world is what you would perceive if your eyes had only one type of cone cell. These receptor cells in your eyes are responsible for relaying specific wavelengths of light to the brain. It is now thought that 1% of the world's population may distinguish between colors more finely than the rest of us, as they possess a rare fourth variation of cone cell, while most humans have only three. Scientists have just begun to study this unique ability with hope that it may teach us more about the evolution and function of color vision. Alternative: New NPR Podcast, The Hidden Brain hosted by Shankar Vedantam.

### Reminder

Please update us if your phone number, email, or address change! Find out more about the study at [ncanda.org](http://ncanda.org)!

"There is no scientific study more vital to man than the study of his own brain. Our entire view of the universe depends on it."  
- Dr. Francis H.C. Crick