



# UCI BROAD Lab

Biobehavioral Research on Adolescent Development

## In this Issue...

- *Page 1: General BROAD Lab Updates*
- *Page 2: Brain Development Study Updates*
- *Page 3: Eating Patterns Study Updates*
- *Page 4: Life Skills Study Updates*



**Moved?  
New phone?**

Please email us at [broadlab@uci.edu](mailto:broadlab@uci.edu) to update your info!

The Biobehavioral Research on Adolescent Development (BROAD) Lab is celebrating three years of recruitment here at the University of California, Irvine and CHOC Children's Hospital! We would like to say a big "THANK YOU" to all the teens and families who participated in our research, as well as all our community collaborators who helped spread the word! Without your help, this important research would not be possible!

The UCI BROAD Lab was established in 2017 and is a collaborative team of scientists, staff and students from multiple disciplines. Our primary goal is to learn more about adolescent development, behavior, mental and physical health, and to foster positive developmental trajectories as teens transition from adolescence to young adulthood.

We continue conducting our three research studies: Brain Development, Eating Patterns and Activity, and Life Skills. We anticipate that the findings from our research will help inform public policy and provide doctors and parents with additional tools and guidance to promote a positive future for their youth.

This past year has been quite different, not only here at the BROAD Lab, but around the world. With the outbreak of COVID-19 in early 2020, the lab and research studies ramped down in March in compliance with the state's stay-at-home order. After a few months of closure, UCI transitioned to Phase 2 research



activities, which aligned with the State's transition to Stage 2. The BROAD Lab received approval to ramp-up in June. With safety and precautionary measures in place, we continue to recruit and conduct study visits as we hope to continue learning about adolescent development.

In the following pages, we provide information about the purpose of each study, as well as some exciting preliminary results. We hope that you have enjoyed your participation and/or collaboration with us. We are very grateful for your contribution to science, and for helping future teens and families who would benefit from new treatments from this knowledge.

# Brain Development Study Updates

This study aims to learn more about how depression manifests differently in the brain depending on one's previous experiences. We are interested in identifying brain structural and functional differences in teens with depression *and* a history of abuse in childhood compared to teens with depression and no history of childhood abuse.

This study uses a "2 x 2 design" which means we recruit participants into four distinct study groups:

- **Group 1:** No depression; No history of abuse
- **Group 2:** Current depression; No history of abuse
- **Group 3:** History of abuse; No depression
- **Group 4:** History of abuse; Current depression

Our goal is to enroll a total of 240 adolescents, with approximately 60 teens in each of the four study groups described above. To date, we have enrolled 137 adolescents (100 females, 37 males). Participants complete 3 study visits. At Visit 1, teens and a parent or guardian complete interviews and questionnaires, and teens provide a blood sample by finger-prick. At Visit 2, the teens complete some problem-solving tasks on and off a computer, and at Visit 3, adolescents participate in a MRI scanning session to take pictures of their brain.

## Study Results

White matter tracts are bundles of nerve fibers which relay and coordinate communication between different brain regions. These tracts are measured as fractional anisotropy (FA), and higher FA values indicate better communication ability across brain regions. We examined whether the communication of these nerve fiber bundles are different in our four study groups. We found that compared to normal controls, both groups of adolescents with depression, and adolescents with trauma experiences without depression had lower FA values in two major nerve fiber tracts: the superior longitudinal fasciculus (SLF), and the anterior corona radiata (AACR) which are involved in regulating emotions (see Figure 1).



UC Irvine and CHOC invite you to participate in the...

## Brain Development Study

Lead Researcher: Dr. Uma Rao

- The purpose of this research is to learn more about brain development in teens with depression and/or a history of abuse.
  - Your child may be eligible if s/he is 13-17 years old and:
    - May be suffering from depression
- AND/OR**
- Has a history of abuse prior to 10 years of age
  - 3 visits to UCI or affiliate locations (7-11 hours total)
  - You and your child will receive up to \$315 plus compensation for travel.

Call/Text: (949) 445-1232 | Email: BRoADLab@uci.edu



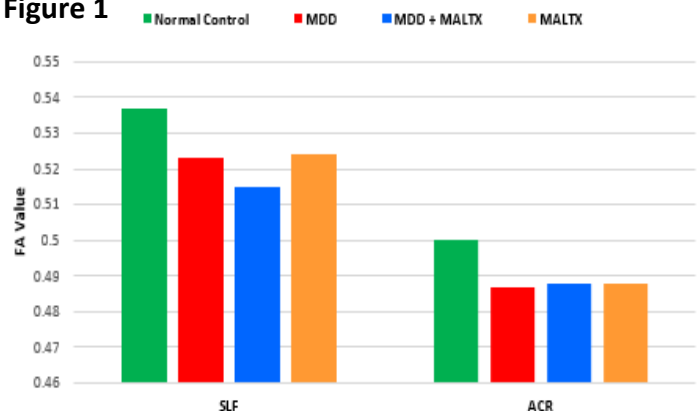
**UCI BRoAD Lab**

Biobehavioral Research on Adolescent Development

UCI IRB Approved: 11-01-2018 | MOD# 24963 | HS# 2017-3440 1 of 1



Figure 1



Thanks to all the teens and families who participated in our study! If you know anyone who may be interested in participating, please ask them to call or text us at (949) 445-1232. You can also share the flyer in the next column, or direct them to our website at: <http://sites.uci.edu/broad/brain-development-study/>

# Eating Patterns & Activity Updates

This study aims to learn more about social and biological stress in relation to eating patterns and physical activity. There are 4 study visits. At Visit 1, parents and teens participate in some interviews, questionnaires and a discussion task. Teens also provide a few strands of hair and a blood sample by finger prick. At Visit 2, teens wear a watch-like device for 7 days, collect saliva samples for 2 days, and participate in phone interviews about their eating patterns. At either Visit 3 or Visit 4, teens participate in a blood draw and a scan to measure fat in different parts of the body. They have breakfast and relax for 3 hours watching pre-approved movies. They participate in a 15-minute task (relax in one visit and make a presentation in another visit), have lunch and go home.

We plan to recruit 300 young women between ages 13 – 17 years, 100 in each of the three racial/ethnic groups: Black/African-American, Hispanic/Latina, and Caucasian/White. To date, we enrolled 161 youngsters (47 Black, 50 White and 64 Latina).



## UC IRVINE AND CHOC INVITE YOU TO PARTICIPATE IN THE... **EATING PATTERNS STUDY**

Lead Researcher: Dr. Uma Rao,  
Department of Psychiatry & Human Behavior

- Help us learn how stress influences eating patterns and activity!
- Girls may be eligible if they are:
  - 13-17 years old,
  - overweight,
  - African American or Black, Hispanic or Latina, or Caucasian or White
- 3 visits to UCI or affiliate locations, plus some assessments completed at home (17-20 hours total)
- You and your child will receive up to \$430 plus travel compensation

Call/Text: (949) 445-6254

Email: [broadlab@uci.edu](mailto:broadlab@uci.edu)



**BRoAD Lab**  
[sites.uci.edu/BRoAD](http://sites.uci.edu/BRoAD)



UCI IRB Approved: 04-02-2020 | MOD# 27547 | HSA# 2017-3441

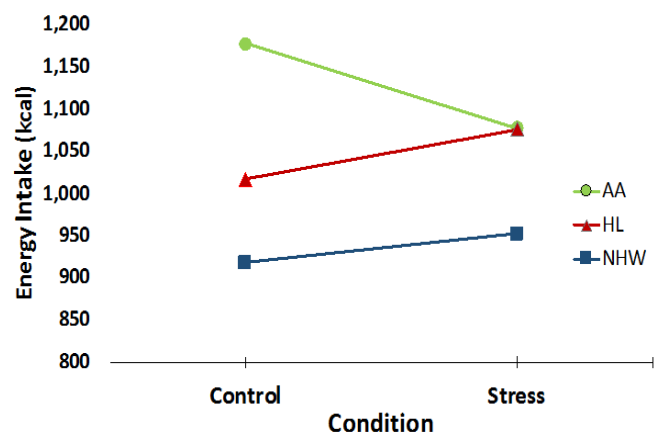
1 of 1

## Study Results

Stress affects everyone differently. Our African-American (AA) participants consumed less calories during lunch on the day they completed a stressful task (presentation to an audience) compared to the day they watched a 15-minute nature video (**Figure 1**). There were no changes in calories consumed by Hispanic (HL) and Caucasian (NHW) teens between stressful and relaxation tasks. Differences also were seen in consumption of fat and sugars, such that AA had a higher intake than HL and NHW teens.

We are trying to understand whether the causes and mechanisms for developing obesity vary across racial/ethnic groups.

**Figure 1**



Great news! With the help of our enrolled families, we collected enough data to write an article sharing our findings (above). This article will be published in the scientific journal *Pediatric Obesity*.

Additionally, our team published a review article, "Stress-Induced Eating Among Racial/Ethnic Groups in the United States: a Systematic Review", in the *Journal of Racial and Ethnic Health Disparities*. Our hope is to advance the literature that may aid in addressing the causes associated with racial/ethnic health disparities in obesity and related medical and psychiatric problems.

Thanks to everyone who recommended the study to family and friends! If you know anyone else who may be interested, please share the flyer on the left, or ask them to call/text us at (949) 445-6254, or email us at [BRoADLab@uci.edu](mailto:BRoADLab@uci.edu)



# Life Skills Study Updates

This study seeks to understand brain changes in response to a family-based program, Pathways for African American Success (PAAS). PAAS is a 6-week program created for the benefit of Black/African-American youth to overcome challenges (e.g. racial discrimination, peer pressure, etc.) and to promote communication between youth and parents for a shared goal of positive long-term outcomes.


Participants complete 4 study visits, plus the PAAS program. At Visit 1, children and parents complete questionnaires about family communication, child behaviors, etc. At Visit 2, youth participate in a brain (MRI) scan. Participants are randomly selected (like a coin-flip) for the 6 week PAAS program or the waitlist group. After 6 weeks, youth participate in a second MRI scan (Visit 3). They then take a 3-month break, after which they complete another set of questionnaires (Visit 4). Once Visit 4 is completed, families in the waitlist group have the opportunity to participate in the PAAS program!

We plan to enroll 160 families. So far, we enrolled 106 families and 58 of them completed the PAAS program and reported that they found the information helpful and that the computer-interactive sessions were enjoyable. Youth also expressed that they enjoyed the MRI scans and computer games!

Thanks to all the families who participated in our study! If you or anyone you know is interested in participating in the Life Skills Study, please share the flyer to the left, or call/text us at (949) 441-0271, or email us at [BRoADLab@uci.edu](mailto:BRoADLab@uci.edu). We are also excited to present a video which will help children learn about what to expect at their MRI visits. To watch this video and read more about our study, please visit <http://sites.uci.edu/broad/life-skills-study/>.

## Study Results

African-American youth randomly assigned to PAAS showed interesting trends in their attitudes toward risk-taking after participating in this program. For example, when asked to answer "I am not like young people who drink or take drugs", and "I am not like young people who have sex when they are my age," youth who completed PAAS showed an increase in endorsing this non-risky identity, whereas youth in the waitlist control showed no change in attitudes (Figure 1). Parents completing the program are also reporting greater increases in risk-related parenting communication compared to parents in the waitlist group. We offer the PAAS program to families in the waitlist group. We hope that they take advantage of the potential benefits of this program.



UC IRVINE INVITES YOU TO PARTICIPATE IN A...

### FAMILY-CENTERED YOUTH PROGRAM

A RESEARCH STUDY DESIGNED FOR THE BENEFIT OF BLACK AND AFRICAN AMERICAN YOUTH!

- You and your child may be eligible to participate if you both identify as African American or Black and if your child is between the ages of 11-14 years
- You and your child will receive up to \$725 for your time and effort, plus compensation for travel
- 4 study visits at UCI or other affiliate locations and a 6-week computer program totaling 18-20 hours over 2-5 months
- The purpose of this study is to learn more about how a family-based program helps promote a positive future for youth by helping them make good decisions when faced with difficult situations. Dr. Uma Rao of the Department of Psychiatry and Human Behavior is the Lead Researcher.

Call/Text: (949) 441-0271 | Email: [broadlab@uci.edu](mailto:broadlab@uci.edu)






Figure 1

