

## FREE EVENTS

### Children's Museum

2121 Children's Museum Dr.,  
Denver, CO 80211

**Free first Tuesday of the  
month from 4-8**

### Denver Zoo

2300 Steele St, Denver, CO 80205

**Free days on November  
3rd, 14th and 20th.**

### Denver Museum of Nature and Science

2001 Colorado Blvd, Denver, CO  
80205

**Free days on September  
8th and 28th, October  
27th and December 1st.**

### National Center for Atmospheric Research

1850 Table Mesa Dr., Boulder, CO  
80305

**Self-guided tour anytime  
from 8-5 on weekdays and  
9-4 on weekends**

**Guided tours M, W, and F  
at noon**

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# Family & Child Neuroscience Lab Newsletter

WELCOME TO THE SUMMER ISSUE!

AUGUST 2016

ANDREW ERHART, GUEST EDITOR

We hope you and your family are having a wonderful summer! The goal of the newsletter is to thank your contribution to research and share updates. In this newsletter, we are excited to introduce some of our new lab members, share research updates of the HEART and IDEA projects, and other information that you may find helpful for your families.

Everyone at the Family and Child Neuroscience lab would like to thank each and every participant in all of our studies for their dedication for inviting us into your homes and working with us time and time again. We also would like to thank our community partners and recruitment sites for helping us find wonderful families we have worked with. Your contribution and dedication to science have enabled us to discover research findings that can inform policy makers and public about ways to support well-being of all members of families and positive child development.

## OUR RESEARCH HAS BEEN FEATURED IN MEDIA REPORTS!

05/30/2016 - Does Having a Baby Really Make It Harder to Concentrate?

**WSJ**

The report discussed the myth of a "mommy brain" and the sense of being forgetful may be in part related to how mothers' intense focus on their babies and parenting immediately after a baby's arrival.

01/08/2016 - What Happens to a Woman's Brain When She Becomes a Mother

*The Atlantic*

The article featured some of our research about how mothers' and fathers' brains change to support parenthood.

05/19/2015 - How Poverty Changes a Mother's Brain and Her Baby's As Well



The report focused on an aspect that increased everyday stress new mothers experience may increase challenges in adjusting to parenthood. It also discussed the HEART project on how stress changes a child's brain growth.



Home Environments And Relationships  
The study of emotional and cognitive development  
The HEART Project

## Research Updates!

### Steps Towards Healthy Sleep for Your Infant (Dr. Andrew Adesman, M.D.)

Written by Rebekah Tribble

**Reliable scheduling once your child is several months old.** Newborns have not yet fully developed what is called their internal clock which helps regulate when you sleep and wake up so it is hard to get newborns to get on a schedule however as your infant ages (after 2 months this system **begins** to mature) it is a good idea to start getting into a routine with their napping and sleeping schedules so that you can entrain their internal clock to wake up and go to bed at certain times.

**At night, set up a soothing routine.** Give your baby a bath, sing lullabies, read a book, or tell a story. These activities can help your baby relax. They also signal that it is time to sleep. Don't get your baby excited with active play right before sleep.

**When your baby is getting sleepy, put your baby in his or her crib in a quiet, darkened room.** This will help your baby learn to go to sleep in his or her crib.

**Put your baby down for a nap as soon as he or she acts sleepy.** If your baby gets too tired, it may be hard for him or her to get to sleep.

### How dealing with stress impacts your child's inner biology

Rebekah Tribble, Research Coordinator

We discovered that children 7-10 years old who reported more positive ways to deal with stress (e.g. problem solving and emotion expression) in their lives had **less anxiety, less cortisol secretion, and longer telomeres**. Cortisol is a hormone that is secreted in your saliva and throughout your body that is related to how much **stress** you experience and telomeres are segments of DNA related to how our bodies age over time (shorter telomeres are related to worse health outcomes). Parents can help teach their children how to use **positive ways to deal with stress** including using problem solving skills, positive thinking, and help them understand how to regulate their emotions so they are better equipped to deal with everyday stress which will in turn impact their inner biology in a healthy way.

### Can life stress make it harder to see emotions?

Andrew Erhart, Graduate Student

We found that the longer time a child of families with more limited financial resources, they understand other's emotional expressions (such as happy or angry) differently, especially when the expressions were more intense. This highlights that while day to day life can be stressful, the increased stressors that come with having limited financial resources (e.g. more worries about paying bills or less stable housing), can **potentially change the way children understand emotions**. **Positive parenting and emotional talk with your children** can fight against this trend, so parents are encouraged to spend time talking with their child about their emotions.

### Our environments can change our brain

Alex Dufford, Graduate Student

In this study, we looked at how brain structure is related to the stressors associated with daily life in children from ages 8-10. We found that **more stressors** were related to reduced volumes in an area of the brain called the superior temporal sulcus which is involved in **language, social functioning, and perception**. This study demonstrated how stress can impact our brains and highlights the importance of finding healthy ways to manage the daily stressors our families overcome.



## Research Updates!

### How does stress change how our brains see negative information?

Christian Captistrano, Graduate Student

We investigated whether or not stress exposure in first-time mothers was linked to changes in brain activity in regions involved in emotion processing. Analyses revealed that **stressed mothers exhibited changes in neural activity** in brain regions that have been implicated in the processing of **emotional information**. This highlights the importance of helping mothers cope with stressors related to being a first-time mom.

### Specific patterns of brain activity are linked to anxiety in new mothers

Amy Anderson, Graduate Student

In our study mother's brain connectivity was measured through an fMRI scan and their levels of anxiety were measured through a questionnaire. We found that greater **postnatal anxiety** in first time mothers is linked with stronger connections between certain brain regions that are linked to functions such as error detection, anticipation, conflict monitoring, and emotional awareness/responsivity. If certain brain networks have unique patterns in mothers with postnatal anxiety, more attention needs to be given to issues of postnatal mood and it may be helpful for first time mothers to observe how their anxiety affects their behaviors and interactions with their child.



*"Play is the highest  
form of research."*

*—Albert Einstein*

### Looking for fun ways to stay busy learning & growing with baby this summer?

Try these fun, age-appropriate activities with your little one!

Written by Rachel Schiff, Research Assistant

0-6 months: **Read with your infant everyday**

6-12 months: Talk with your baby about how they are feeling. A fun game idea: play "what face am I making" in mirror together: pretend to be happy, sad, angry...describe to them why you look the way you do. Silly faces are fun, too.

12-24 months: Did you know that babies can already do math at this age?! Talking with your child about everyday instances of "more," "some," and "all done" while you go about your normal day. Also, hand rhymes and songs like "wheels on the bus" teach children spatial relations

24-36 months: Play dough for all!! Play dough can be an amazing exploration.

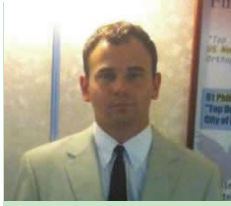
Mix 1 cup of flour, 1 cup of salt, water mixed with food coloring until a ball forms.

Add a packet of Kool Aid to make it smell good and add some fun colors to it.

Grab some plastic forks, knives and spoons and have fun cutting mashing and roiling the dough.



# Meet our Lab Members



Alex graduated with a Bachelor of Science degree in Psychology with a focus in Neuroscience from Penn State University in 2013. Following graduation, he became the lab manager for the Cognitive Neuroscience Lab at CUNY Queens College and the Lab of Neuroimaging at the Icahn School of Medicine at Mount Sinai. Alex is now a first year graduate student in the Developmental area at DU specializing in developmental cognitive neuroscience. He is interested in structural brain analyses such as voxel-based morphometry and diffusion tensor imaging to investigate how environmental factors can impact the developing infant and preadolescent brain. In his spare time he enjoys playing bluegrass music and exploring Denver's live music scene.

Andrew Erhart is a first year graduate student in the Developmental Psychology Ph.D. program at the University of Denver. He has a Master's in Psychology from Brandeis University where he studied brain function related to motor control. He has an undergraduate degree in Psychology, Neuroscience, and Philosophy from Washington University in St Louis. His current research interests include cognitive development, social cognition, and statistical modeling, especially in a neuroimaging context. In his spare time, he likes to produce electronic music and play fighting games competitively.



Rebekah Tribble- Rebekah is a research coordinator in the Family and Child Neuroscience Lab. A Colorado native, Rebekah earned her undergraduate and Master's degrees in Integrative Physiology from the University of Colorado Boulder where she studied toddler napping and its relationship to diurnal cortisol secretion. Her research interests include stress in families and children, coping with stress, and how stressors affect health outcomes. She is also interested in cancer research and how stress can impact the risk for developing conditions like cancer. Outside of work Rebekah enjoys trying new cuisines, volunteering, traveling, and spending time with her family.

## *Did you move or change your phone number?*

If you have done so in the past year, please remember to send us your updated address and phone information. We want to keep you in the loop about new studies and happenings in the lab. Give us a call at 303-871-3096 or email us at [fcnlab@gmail.com](mailto:fcnlab@gmail.com).

